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VOL. XI.] JANUARY, 1903. [No. 121.

THE ORCHID REVIEW:

An Illustrated Monthly Journal of Orchidology.

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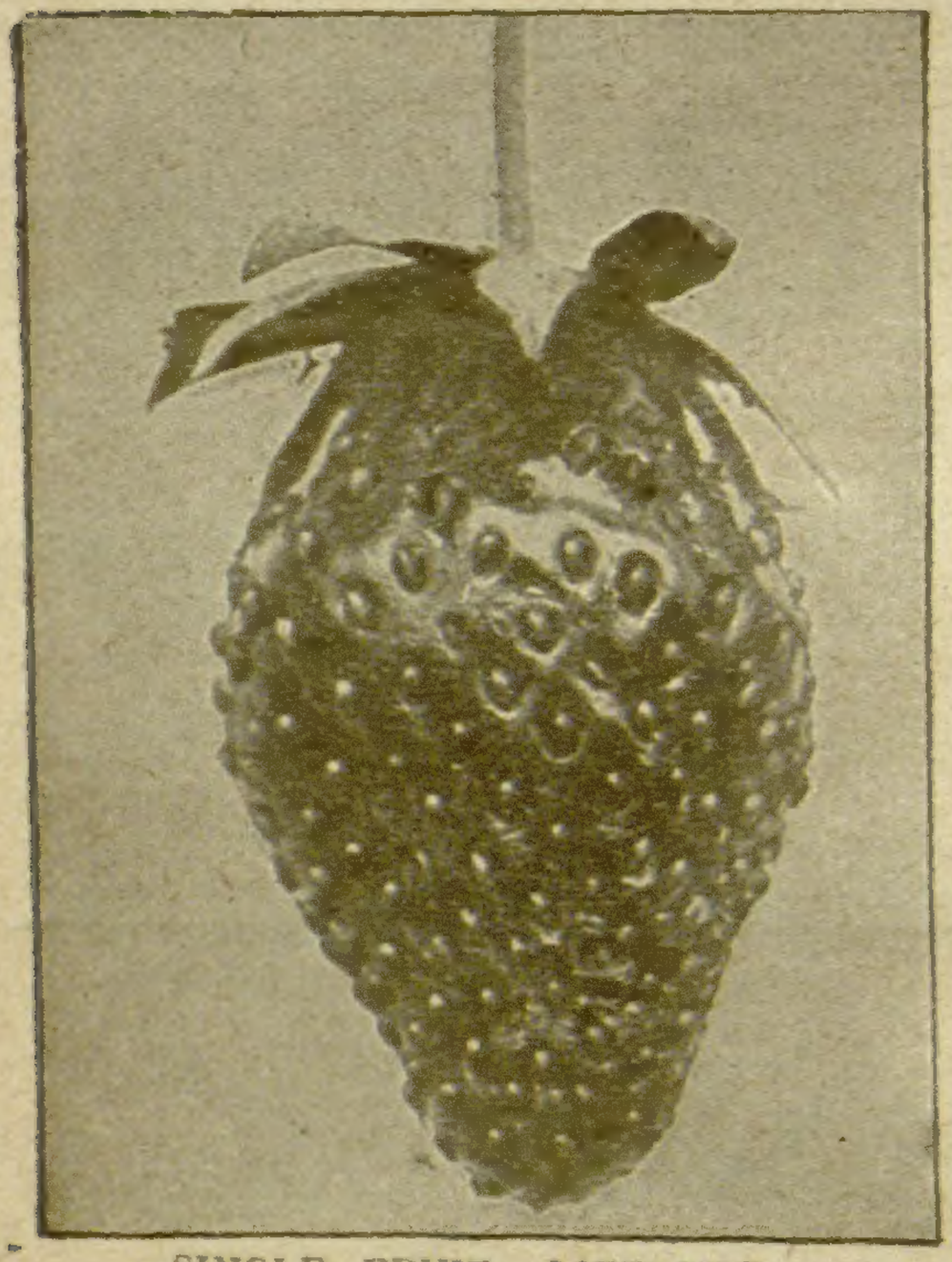

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See page 373.

THE

ORCHID REVIEW

An Illustrated Monthly Journal

DEVOTED TO ORCHIDOLOGY

VOLUME XI

1903

London:
MARSHALL BROTHERS, KESWICK HOUSE, PATERNOSTER ROW, E.C.

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Mo. Bot. Garden
1906

I love a garden and a greenhouse; where,
Unconscious of a less propitious clime,
May bloom exotic beauty, warm and snug,
While the winds whistle and the snows descend.

COWPER.

THE ORCHID REVIEW.

VOL. XI.] *JANUARY*, 1903. [No. 121.

A DECADE OF ORCHID LORE.

THE last number having completed the tenth annual volume of the *Orchid Review*, I feel that the occasion should not be allowed to pass without a word of appreciation and encouragement to the Editor for his most useful work. The single numbers, as they arrive each month in their familiar covers, are apparently a simple monthly review of Orchid lore, giving us the current news of the Orchid world, and all the new and up-to-date information that we require, both cultural and scientific. But when the December Index number arrives, and we bind up the twelve single numbers into one volume, we begin to realize that the work is a permanent work of great value, being indeed a mine of information, with its accurate records of facts and critical observations, based upon patient and original research. The mystic letters R.A.R., often appended to an article, are always a guarantee of matured thought and ripe experience, and when sometimes these magical initials are suspended, we all recognize the master hand, which, however skilful it may be, cannot conceal itself in anonymity.

Now that the single volume has grown into ten, the realization of the permanent value of the work has also increased tenfold, and it is with the greatest satisfaction that we now contemplate their completion.

It is quite impossible in a short note like this to even mention a few of the interesting and salient features of the past ten volumes, nor is there any need to do so, for do they not all speak eloquently for themselves. But one I think will serve for all, and that is the annual Index. In this special feature the *Orchid Review* is a model to its compeers as a work of precision, its Index being at once comprehensive and accurate. As a practical illustration of this, I may say that, so far as I know, the Review Index is the only concise key we have to the records of the new hybrid Orchids exhibited at the Meetings of the Royal Horticultural Society, and what this means can perhaps be best appreciated by the unfortunate compilers of the forthcoming *Orchid Stud Book.* And this is but one small instance among many where the Review Index serves to lighten the labours of the student, who in his

turn is working for the advancement of knowledge. May the *Orchid Review* live to celebrate its second decade by continuing to earn the appreciation of Orchidists the wide world over.

CHARLES C. HURST.

12th December, 1902.

We made a brief reference last month to the completion of our tenth volume, and now we have to thank several esteemed friends and correspondents for letters of congratulation and good wishes for the future. It is certainly pleasant to look at our ten completed volumes, but the work has entailed a considerable effort, and we have to thank all those whose kind co-operation and support have rendered the achievement possible. It may be interesting to reproduce part of our original programme.

OUR PROGRAMME.

"The *Orchid Review* has been established to supply a want which we believe has long been felt among amateurs of Orchids, namely, a journal devoted to their special interests.

"The cultivation of Orchids has become a most important, and to some extent also, a special branch of modern horticulture. The number of people and the amount of capital employed directly or indirectly in it is very large. Already the subject has a literature of its own, though too scattered to be readily accessible, and anything tending to concentrate it would confer a boon upon those interested in the subject.

"In this belief we have decided to establish a monthly repertorium of information on every important branch of Orchidology, and to present it to the reader in a form suitable both for present use and future reference. We believe there is room for such a publication, without unduly interfering with the existing horticultural press, and we look with confidence for such support as shall enable us to prosecute our labours with success.

* * * *

"It is intended to make the work a general repertorium of Orchid lore, and by conducting it on broad and independent lines to enlist the sympathy and secure the support of all lovers of this unrivalled family."

The omissions from the above refer chiefly to details, and there are many who have been readers from the commencement who can judge how far the programme has been carried out. We have aimed at making the work an impartial record of the principal events in the Orchid world, and we believe that our pages contain a concise history of Orchid cultivation for the last ten years. And we may go still further back, for the "History of Orchid Hybridisation," from its commencement about the middle of the nineteenth century to date, was detailed in our first volume, and the "History of Orchid Cultivation" covers the period from 1732, when the first tropical Orchid (Bletia verecunda) flowered in England, down to 1847, the period we have now reached. The interesting series of articles entitled "Notes on Orchids in the Jungle," by the late Major-Gen. Berkeley, are types of many which have been devoted to Orchids in their native homes. Accounts of many of our leading collections have been given, with some in

the United States and on the Continent; also numerous biographical details. Cultural details, including notes on raising Orchids from seed, have been well looked after by some of our leading experts. Reports of exhibitions have occupied a prominent place in our pages, and the principal events in the Orchid world have been discussed under the heading of "Dies Orchidiani." A series of articles on "Natural Hybrid Odontoglossums," and of some other genera, have collected the scattered information respecting these interesting plants; while various important cultivated genera and species have also been dealt with in detail, of which the articles devoted to the genus Cattleya and to the history of the long-lost C. labiata may be mentioned as examples. The various scattered figures of Orchids in contemporary publications have been collected together, and may be found by means of the Index, respecting which latter we need add nothing to the foregoing remarks of Capt. Hurst. Our illustrations have, with two exceptions (Cypripedium Charlesworthii and Eulophiella Peetersiana), been reproduced from photographs, which is a sufficient guarantee of their accuracy. Numerous other details might be mentioned, but the volumes must be left to speak for themselves.

And now we come to speak about the future. Among other proposals for commemorating the past decade, we have received two letters urging the desirability of publishing an Index to the ten completed volumes. The utility of a single Index is admitted, but it would entail a considerable amount of work, and some little expense, and if undertaken the question arises how much to include. Our idea is that a select Index would best meet the case, and this should include:—(1) the titles of all articles, except those which recur regularly; (2) references to the descriptions of all novelties and the first mention of all hybrids exhibited; and (3) any item of permanent importance not included under the two preceding headings; with, of course, a list of illustrations. For details beyond this we think the annual indices will suffice. The idea is to have a quick means of finding the important items of information contained in the ten completed volumes, and a combination of the existing indices would be too bulky. We should be glad to have the opinion of our readers upon the question.

Another esteemed correspondent urges the desirability of establishing a section for the exchange of duplicates, as many amateurs have batches of hybrid seedlings of certain crosses, and would be glad to exchange with others who are similarly situated. We should be glad to hear from others who approve of this idea, as it would be very easy to arrange the details. Two or three other suggestions have been made, which we shall act upon as circumstances permit, as we wish to make the work progressive in the best sense of the word. One very important development is in progress, of which particulars will appear in an early number.

In conclusion, we would urge our readers to make more use of our pages for their individual experiences, as important items of information are apt to be lost if not placed on record at the time, and such details are always read with interest. In this way, and in making the work more widely known among their friends, our readers could materially assist the progress of the work. We desire to enlist the sympathy and support of all lovers of these beautiful plants, who we hope will assist us in making the coming decade of even greater importance than the one now completed. In conclusion we wish all our friends and subscribers a happy new year, and increased prosperity to their collections.

ZYGOPETALUM MACKAYI AS A PARENT.

IT has already been recorded that the facility with which *Zygopetalum* Mackayi can be made to produce seed and seedlings when fertilized with pollen from other genera is surprising, and the resulting progeny remarkable for being in each instance true to the mother parent. We have raised and flowered plants here that were the result of fertilizing the *Zygopetalum* with Lycaste Skinneri, but we have other evidence bearing upon the matter that is worthy of publication, as it refers to experiments in the second generation, from which we are taught that the break might be expected to come.

Mr. George McWilliam, of Whitinsville, Mass., one of our most painstaking of hybridizers, and very successful in his work, some time since fertilized *Z.* Mackayi with pollen of Lælia anceps, and in due time plants were raised and flowered, all being without variation *Z.* Mackayi. One of the resulting plants was then fertilized with pollen of a white form of L. anceps, and the first plant has just bloomed from this experiment, the results being the same as before, except that the flower is a shade or two paler than usually seen, but there is no modification of the parts. Mr. McWilliam has again fertilized this light form with a white variety of L. anceps, to see what the third generation may bring forth, and in due time no doubt we shall be able to chronicle the results. Most people would be willing to give up trying after two failures, but there is material here for discussion as to why it is some plants are so susceptible to impregnation, and yet the same does not leave its impress on succeeding generations. It is one of the many problems that crop up to set the experimenter thinking—as also with Epidendrum radicans, for we believe this species has never yet produced seedlings when crossed or fertilized with any other subject. These and similar questions are suitable matter for the study of the plant physiologist; the average cultivator can rarely find time or possess the requisite apparatus, but he can easily furnish materials enough.

Among Orchidaceous plants there are few if any that produce seedlings in such a prodigal manner as *Zygopetalum Mackayi*. The seeds are relatively large and easy of germination, and once sown in a structure it is amazing to find that they spring up in the most unexpected places. This has probably been noted by others, and doubtless very many similar experiments to the foregoing have been made by others.

S. Lancaster, Mass., U.S.A. E. O. ORPET.

SLUGS! SNAILS! AND WOOD-LICE!

WILL not some sympathetic reader tell of an effective antidote, or a means of getting rid of these pests? By so doing he will earn the undying gratitude of hundreds of enthusiasts. We watch and tend our plants the year round; when, joy, that little pet *Odonto*, which has been so carefully watched, has at last a spike showing! With what interest have we noted the various gradations of that plant since the time when its bulbs were little larger than a pea. Each year they have increased in size, and now the reward is *apparently* in sight. Alas, it is only apparently, for one night a silent foe, unseen, comes and feeds on the succulent tender spike, regarding it as an excellent tit-bit. It is not often that the visitor, which in its path leaves a glistening slime, is of large dimensions. If these appear, they are soon detected—but it is the small unseen sluggish mite, who more than equals its larger ally in comparative voracity.

Unseen, unheard, it sets to work
Upon our "crispum" spike;
The cotton-wool it does not shirk,
But eats away all night.

Next morn our embryonic flower
A sorry sight appears;
Gradually the tip drops lower,
The sap exudes in tears.

[Likewise the grower's feelings!—ED.]

Lettuce leaves, bran, and the other standard methods of *catching all you see* are not thoroughly effective. Is there no other remedy than *persevering search*, too much zeal in which often results in scorched leaves, and disfigured patches on the foliage, owing to drip from the oil lantern?

I was once told that fumigation was certain death to wood-lice, but after two successive nights of this killing treatment, I found them still contentedly feeding on the Dendrobium roots. It is very interesting to see the young roots pushing from the base of the new growths in search of food, but with wood-lice on a similar mission the case is different.

If some reader can tell of a better method than prowling about half the night "bug-hunting," he will be a benefactor to hundreds of others, besides

AN ANXIOUS AMATEUR.

EPIDENDRUM × KEWENSE.

A CURIOUS hybrid Epidendrum is again flowering at Kew whose history it may be interesting to record. For some time I have had a suspicion that one or two doubtful Epidendrums of the Schomburgkii group may be natural hybrids, but no opportunity of crossing the suspected parent species has yet presented itself. Epidendrums have the character of being easily raised from seed, and when the bright yellow E. xanthinum and the deep purple E. evectum were in flower together they were intercrossed. The experiment was made chiefly from a feeling of curiosity as to what would result, for the two species are not known to grow together. On April 24th, 1899, the cross was effected, both ways, xanthinum ♀ × evectum, and evectum ♀ × xanthinum. The latter cross failed, and exactly a fortnight later was repeated, this time successfully. The result was two fine capsules, the first of which showed signs of bursting about the end of July, and the second a week later, when they were tied up in paper, to prevent losing the seeds. Both capsules contained abundance of good seeds, and some of the first cross were sown on August 19th, and of the second two days later, different receptacles being used, and care being taken to prevent any intermixture. The seedlings quickly began to germinate, and as soon as ready a few plants of each kind were pricked off, after which they progressed steadily, until in the spring of 1902 two plants of the second cross flowered, one of them when barely over eighteen months old. In the December following a third of these is in flower, also one of the first-named crosses (xanthinum ♀), which has progressed rather more slowly. Others are in bud, and altogether there are eight spikes showing on six plants. In general habit the two parents are pretty similar, with differences in stature, and in the size and shape of the flowers, but especially in colour, one being clear bright yellow, the other very deep purple. These colours are combined in a curious way in the hybrid, four plants of which have now flowered, all showing different shades of buff and salmon colour. On close examination this is seen to be due to an irregular marbling of light reddish purple over a yellow ground, as if the two colours were only partially mixed, or were trying to separate themselves again. The seedling from xanthinum is more yellow than the three from the reverse cross, but the yellow is of a light buff shade, very different from that of the parent.

A few flowers have now been self-fertilised, and if the hybrid proves fertile the results should be specially interesting, for Mendel's theory assumes that the gemmules of hybrids remain pure, and therefore self-fertilised seedlings ought to revert to the original in certain characters. In this particular case the most striking difference between the parents lies in

the totally different colour, and should seedlings result they should throw an important light on the validity or otherwise of Mendel's "Law." And the results should begin to be apparent in about two years. The genus Epidendrum seems to be a specially good subject for a series of Mendelian experiments, for while retaining all the advantages mentioned some time ago as pertaining to Orchids, it largely eliminates the objection as to the long period which elapses before the seedlings attain flowering age. Other hybrids, as E. × O'Brienianum and E. × dellense, would probably form equally good subjects for experiments. R. A. R.

OBITUARY.

CAPT. T. C. HINCKS.—This well-known Orchidist died at Richmond, Yorks., on March 13th, 1902, after more than three years of failing health. He was born in 1840, and first began Orchid growing at Breckenbrough, near Thirsk, Yorks., in 1872. He was an ardent Orchidist, though Masdevallias seem to have been his chief favourites, and in the raising of these he was particularly successful. His first hybrid was M. × Hincksiana (tovarensis × ignea), which flowered in 1887, being dedicated to him by Reichenbach; and afterwards came, successively, M. × Stella (Estradæ × coccinea Harryana), in 1890; M. × Cassiope (triangularis × coccinea Harryana), in 1892; M. × Rushtoni (ignea × racemosa), and M. × Veitchiano-Estradæ, in 1893; M. × Doris (triangularis × racemosa), in 1894; M. × Leda (Estradæ × Arminii), in 1895; M. × Acis (abbreviata × Chelsoni ?), in 1896; M. × Hebe (coriacea × Veitchiana), and M. × Pluto (× Gairiana × coccinea Harryana), in 1899; and, lastly, as we learn from Mrs. Hincks, a very pretty hybrid from M. caudata Shuttleworthii × Gairiana, which bloomed when the collection was disposed of in May last, and for which, as it does not seem to have been described, we propose the name of M. × Hincksiæ. Such a record will keep his memory green as long as hybrid Masdevallias are cultivated. Other Orchids dedicated to Captain Hincks which occur to us are Sarcanthus Hincksianus and Selenipedium Hincksianum. He has been a subscriber to the *Orchid Review* from its commencement.

FRANCOIS DESBOIS.—The *Chronique Orchidéenne* announces the death of this gentleman, at Anderghem, near Brussels, on September 14th last. He was born at Angers, in France, on October 28th, 1827, but settled in Belgium some fifty years ago. For a long period he was attached to the establishment of Messrs. Van Houtte, then founded a horticultural establishment at Mont St. Amand, near Ghent, but of recent years he has superintended the culture of M. Madoux's rich collection at Anderghem. In 1888 he published a *Monographie des Cypripedium, Selenipedium et*

Uropedium, and ten years later a new and greatly enlarged edition. He is described by M. Cogniaux as a passionate lover of Orchids, an excellent cultivator, and a traveller as conscientious as he was modest and disinterested.

ROBERT TUNSTILL.—We deeply regret to hear of the death of that young and enthusiastic Orchidist, Mr. Robert Tunstill, Monkholme, Brierfield, Burnley, which took place on November 26th, after a week's illness with influenza. His gardener, Mr. W. Balmforth, writes that his death came as a great blow, particularly to his wife, as he was only 43 years old, and had been married barely three years. His enthusiasm in Orchid culture was wonderful, and he was forming a select collection, some of which have been noted in our pages. He leaves a widow and infant son. The collection is to be sold in the spring, and in consequence his gardener, Mr. W. Balmforth, will then be seeking a re-engagement.

ORCHIDS IN LEAF-MOULD.

I HAVE been much interested in the discussion on leaf-mould, and if I had no other evidence before me I should begin to repot the whole of my small collection in this wonderful new compost. But before doing so I should be glad to discover whether the growing conditions of the past year have not been unusually favourable. In my small collection nearly all the species I grow have made some wonderful growths, double and treble the previous year's, and in one or two cases five times is no exaggeration. I have continued to use the old peat and moss compost for potting, and have repotted in this several plants previously in leaf-mould. The sprayer has been used freely in all the houses, and very careful attention has been paid to watering. All my plants are very near the glass, and I use the lath blinds on all the houses; double on the cool houses. I am inclined to attribute the successful cultivation to the superior knowledge of the requirements of the plants which our gardeners have now-a-days, if not to the favourable conditions of the weather of 1902. I should be glad to hear the experience of others on this point. With best wishes for a prosperous eleventh volume.

AMATEUR.

[We should be glad to have the opinion of others on these points. Meantime we would suggest that our correspondent should give the new treatment a trial before discarding entirely what has served him so well. We have felt bound to call attention to the results obtained with the new compost, but have several times advised that the two systems should be tried side by side. Of course the results of the new treatment are not limited to 1902.—ED.]

ODONTOGLOSSUM CRISPUM LUCIANI.

WE have now much pleasure in illustrating one of the most richly blotched forms of Odontoglossum crispum which has yet appeared, namely the beautiful O. c. Luciani, from the collection of A. Warburton, Esq.,

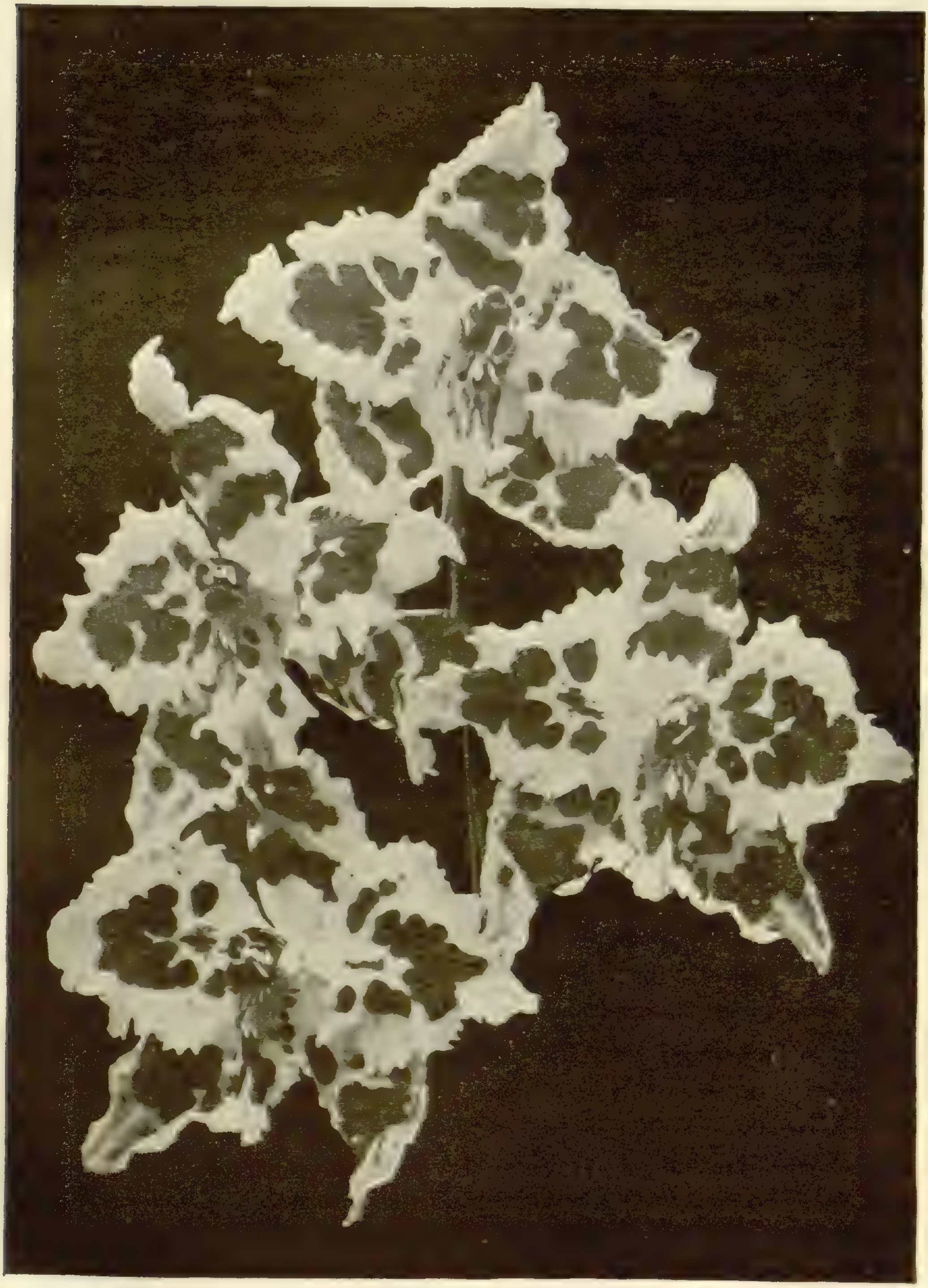

FIG. 1. ODONTOGLOSSUM CRISPUM LUCIANI.

Vine House, Haslingden. The photograph here reproduced was taken and kindly forwarded to us by Mr. G. I'Anson, of Bush Hill Park, and represents the inflorescence which was exhibited by Mr. Warburton at the R.H.S. meeting on June 10th last. The variety was first exhibited at the Drill Hall by Messrs. Lucien Linden & Co., of Moortebeek, Brussels, on March 23rd, 1897, and gained a First-class Certificate, as recorded at page 127 of our fifth volume. It was afterwards purchased by Mr. Warburton, who exhibited it at a meeting of the Manchester Orchid Society on March 6th, 1902, when it received the unusual award of a Gold Medal. As will be seen from the figure, the shape of the flower is excellent, and the blotches very large, while their dark brown-purple, or almost claret-purple colour, which shows through to the back of the segments, gives an extremely rich effect. The following figures have been published:—*Gard. Chron.*, 1897, i., p. 268, fig. 90; *Lindenia*, xii., t. 568; *Gard. Mag.*, 1898, p. 406, with fig.; and *Garden*, 1902, ii., p. 253, with fig. If these figures are compared with the present one it will be seen that the flower has considerably improved since its first appearance, the blotches being larger and more aggregated together. The *Garden* states that "one plant recently changed hands for the record price of 700 guineas."

It may be interesting for purposes of comparison to give illustrations of several other varieties of this popular species, which is one of the most variable Orchids in cultivation. This variability takes the form of differences in the shape and breadth of the segments, forming "round" and "starry" flowers; the purity or otherwise of the ground colour, whether white or suffused with rose-pink or lilac, or the suffusion confined to the sepals; and in the shape, size, colour, and arrangement of the spots. In the latter character the variation is enormous. The spots may be confined to the lip, to the lip and sepals, or they may occur on all the segments. In size they vary from quite minute dots, which are then usually numerous, down to few, large, irregular, and more or less confluent blotches, while their colour may range from cinnamon to deep red-brown, rose, or claret-purple. And there are a few varieties which owe their peculiarity to some abnormal character, by which the markings are almost confined to the petals, as in the remarkable varieties Kinlesideanum, Oakfield Sunrise and Lady Jane (the latter figured at page 217 of our last volume). The number of named varieties is now very large, and many of them are quite distinct from a florist's standpoint, though some would not stand the test of comparison side by side. Many of the older varieties have been lost sight of, and supposed novelties are frequently named without comparison with pre-existing forms. And many named, and even certificated varieties are very imperfectly described, which further increases the difficulty of keeping exact records.

O. c. IMPERATOR (fig. 2) is a very handsomely blotched form which appeared in the collection of John S. Moss, Esq., Wintershill, Bishops Waltham, in 1895. The shape is rounder than in O. c. Luciani, and the petals are extremely broad, but the markings are not quite so heavy. The sepals and petals are suffused with rose-pink, which is darker on the back of the flower, and the blotches are dark red-brown in colour. It is a superb variety, and takes a high rank among the heavily blotched forms of the species. It bears some resemblance to O. c. Rex, from the collection of Baron Schröder, which was figured at page 241 of our second volume.

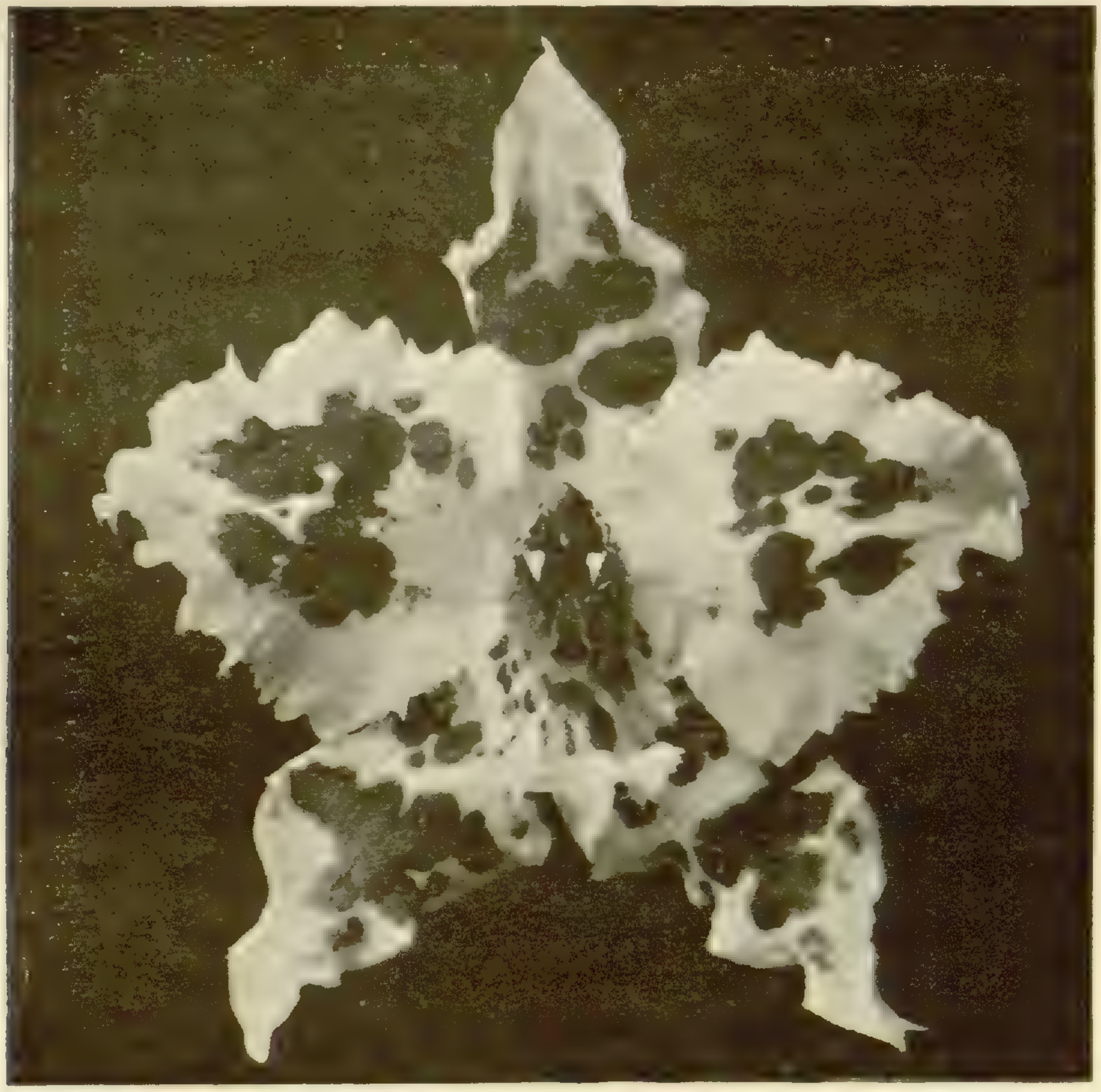

FIG. 2. O. C. IMPERATOR.

Nearly allied to the foregoing we find a group of handsome varieties, in which the markings take the form of a single very large irregular blotch on each segment, with occasionally one or two smaller detached spots; of which may be mentioned nobilius, augustum, Hrubyanum, Duvalii, and ferrierense, which differ from each other in certain respects. Mundyanum is another superb form in which the blotches are rather less confluent, and the segments very broad, while the superb variety Pittianum is also nearly allied, but the blotches are rather more broken up than in nobilius. All the seven varieties just mentioned have been figured in various horticultural works.

O. c. QUEEN VICTORIA (fig. 3) is another beautiful variety, which was exhibited by Messrs. Hugh Low & Co., at the Temple Show in 1897, and gained the award of a First-class Certificate. The shape of the flower is remarkably regular, the sepals and petals being more equal in breadth than in the preceding form. The ground colour is white, with a tinge of rose-pink towards the apex of the sepals, and the colour of the blotches is bright purple-brown. The plant exhibited bore a very compact spike of numerous flowers, and was greatly admired. It is nearly allied to the varieties mentioned in the preceding paragraph, the blotches being nearly confluent in one, but possesses characters by which it can be distinguished.

FIG. 3. O. c. QUEEN VICTORIA.

The guttatum group of varieties is characterised by having the spots smaller than in the preceding, and pretty regularly distributed, the sepals and petals also being generally rather narrower. Of these, we may mention guttatum and Regina, but there are many others, and Cooksoni may be considered a superior variety of this group. And some form transitions between this and other groups. The variety maculatum is remarkable for having rather few small blotches on the sepals, but more numerous smaller spots regularly distributed on the petals. Wrigleyanum is in some respects intermediate between this and the purpurascens group, having the sepals and petals strongly suffused with rose, and much spotted with a darker colour, and there are two or three other allied forms.

O. c. FRANZ MASEREEL (fig. 4) is a magnificent variety from the collection of M. Jules Hye-Leysen, of Ghent. It originally flowered with MM. Vervaet & Cie., of Ghent, who had purchased it, with others, as an imported plant from M. Aimé van den Bogaerde, of Birmingham. It was exhibited by MM. Vervaet at a meeting of the R.H.S. on November 13th, 1894, and was awarded a First-class Certificate. The shape of the flower is perfect, and the ground colour is more or less suffused with rose-pink, while the heavy and very regular markings are deep claret-purple on the petals, but on the sepals they are rather more of a crimson-brown shade. The petals are more strongly toothed than in some of the allied varieties.

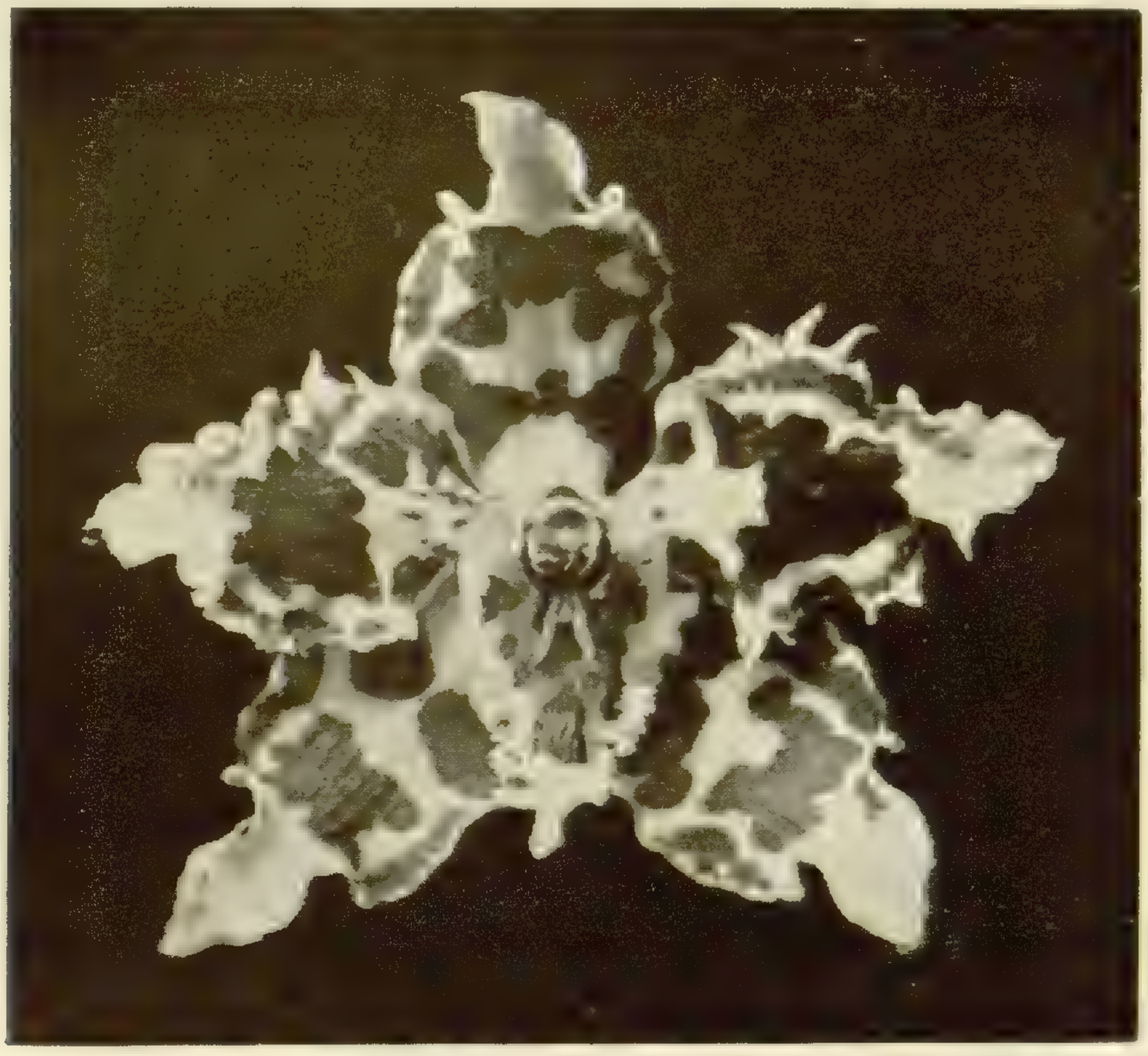

FIG. 4. O. c. FRANZ MASEREEL.

This variety differs from most of the heavily blotched forms previously mentioned in the regularity of the markings, which are distributed over the segments almost in hieroglyphic fashion, and hence it is difficult to compare it with any other. The variety Baroness Schröder, however, has still more heavily marked flowers, of somewhat similar colour. With Ashworthianum, too, it has some affinity, but in that the blotches are not so dark, and more suffused into the ground colour.

A comparison of all the heavily blotched forms of Odontoglossum crispum side by side would be extremely interesting, and help us to understand their differences better than at present. Several are known only from description, and some of the figures are not very accurate. Moreover the markings in some cases vary somewhat in different seasons.

O. C. HELIOTROPIUM (fig. 5) is a very charming variety from the collection of R. Brooman White, Esq., of Arddarroch, N.B., which received a First-class Certificate from the R.H.S. on April 27th, 1897. The shape and details of the flower are excellent, and the ground colour is bright lilac-rose, with red-brown spots, those on the petals being rather smaller and more numerous than the others. The raceme bore eleven flowers. It is one of a group of named varieties characterised by having the sepals and petals more or less deeply suffused with rose-pink or lilac, and the spots varying considerably in size and number. Of these we may mention, as having been figured, the varieties

FIG. 5. O. C. HELIOTROPIUM.

purpurascens, plumatum and ocellatum, while meleagris is in some respects intermediate between this and the guttatum type. When the spots are absent we get forms which are often cultivated under the name of O. c. roseum, but the name is sometimes also applied to spotted forms that have a rosy ground colour.

Between the foregoing and the typical form a host of intermediates occur, among which we may mention those of the Trianæ group, in which the spots are confined to the sepals and lip. The variety xanthotes is one of these, in which the spots are wholly bright yellow in colour, and two or three other forms are somewhat similar in this respect.

O. C. STEVENSII (fig. 6) is a superb variety which appeared in the collection of the Duke of Sutherland, at Trentham, and received a First-class Certificate from the R.H.S. as long ago as March, 1882. It is markedly different in shape from the preceding varieties, having longer and narrower sepals and petals, and although the crest of the lip is fairly typical one cannot help suspecting some trace of hybridity in its ancestry, for there is a marked resemblance to certain forms of O. × Denisonæ (Wilckeanum) which is otherwise difficult to account for. The ground colour of the flower

FIG. 6. O. C. STEVENSII.

is ivory white, and the markings bright cinnamon-brown, the blotches on the sepals being few and very large, while those on the petals are mostly small and evenly distributed, giving the flower a very bright appearance. It was named after Mr. *Z.* Stevens, the Duke of Sutherland's gardener. A plant in the collection of Baron Schröder, The Dell, Egham, produced in 1889 a fine raceme, bearing as many as twenty flowers, the largest measuring four inches from tip to tip of the petals; an exceptionally fine example of good culture. The flower figured came from the Baron's collection.

O. c. PRINCE OF WALES (fig. 7) is a remarkable variety in every respect. It was exhibited at a meeting of the R.H.S. in June, 1898, by Messrs. Hugh Low & Co., and received both a First-class Certificate and a Cultural Commendation. The plant bore twelve bulbs of enormous size, and had been eleven years in the collection before it bloomed. Our illustration represents one of the flowers, of *exact size*. The colour is pure white, with a slight tinge of pink on the sepals, and about three light

FIG. 7. O. c. PRINCE OF WALES.

cinnamon spots on the lip in front of the yellow crest. It is a noble variety, and may be described as a giant form of what Bateman, in his *Monograph of Odontoglossum*, called "White or Weir's variety," the colour and arrangement of the markings being very similar. Several other white forms of more normal size have been named. O. c. virginale represents the limit of variation in this direction, as the spots have completely vanished, the only colour remaining being the bright yellow disc.

VANDA SANDERIANA.

THE annexed illustration represents a magnificent specimen of Vanda Sanderiana, from the collection of J. Gurney Fowler, Esq., Glebelands,

FIG. 8. VANDA SANDERIANA.

S. Woodford, Essex (gr. Mr. Davis), to which a Gold Medal was awarded by the R.H.S. on October 13th, 1896. It bore eleven spikes and an aggregate of 127 flowers, but a raceme of ten flowers had previously been

removed. It has the reputation of being a difficult subject to grow unless the right situation is found for it. Mr. Fowler's plant was grown on the centre stage of the East Indian house, over a large tank of rain water. The principal station of the species is said to be at Davao, on the south-east coast of Mindanao, S. Philippines, where it grows on trees that overhang the beach, the long trailing roots often being within reach of the salt spray.

PAPHIOPEDILUMS FROM BURY.

WE have a further illustration of the value of the Paphiopedilum as a winter-blooming plant, in a series of about fifty flowers sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, by Mr. Rogers. They are cut from plants exhibited at the Drill Hall on December 9th last, and at Manchester two days later, a Silver-gilt Flora Medal being awarded by the R.H.S., and a Gold Medal by the Manchester Orchid Society. The flowers are all splendidly developed, and afford evidence of excellent culture. P. insigne is represented by a very fine series, including eight yellow varieties, varying somewhat in size and colour, and in the distinctness of the spotting on the dorsal sepal. Of these Sanderæ and Laura Kimball represent the culminating point in colour development. The spotted forms are too numerous to mention individually, but Harefield Hall var. is remarkable for size, tessellatum for the close, partially confluent spots, Dormanii for the rather sparse very large spots, Youngiæ for the very dark brown spots, which are also strongly developed on the petals, though much smaller, and Berryanum for the rather elongated dorsal sepal, which is more undulate than usual, and the spots large and rather sparse. Eight varieties of P. × Leeanum show the variability and decorative value of this beautiful hybrid. They have already been noted in our pages. Other noteworthy hybrids are the handsomely spotted P. × Swinburnei magnificum, P. × Arthurianum, P. × Lathamianum Bridge Hall var., exceptionally large and handsome, P. × calloso-Warneri, P. × Statterianum, P. × Schlesingerianum Mons. de Curte, P. × Calypso, P. × nitens Sallieri, P. × n. Hyeanum, and Arle Court var., P. × Minos, P. × Antigone, and others. And we must not omit some beautiful varieties of P. × Hera (Euryades), of which the variety incomparabilis is extremely promising, as the lower half of the dorsal sepal is wholly deep red-purple, with the margin and apex nearly white. The lip and petals are also well-coloured. It is a Bridge Hall seedling, and the flower is probably not yet fully developed. Another excellent point about these plants is their value as cut flowers, for if cut before too old they last a very long time in water. It is an extremely beautiful series.

AN AMATEUR'S SECTION.

WOULD it be possible to have an Amateur's section in this most useful work, in which notes might be written for the benefit of a large number of amateurs who *try* to grow these beautiful flowers? I have often thought it would be useful. Personally I have profited a great deal from the perusal of your pages, and what a lot there is to learn for those who become fascinated! A special Amateur's column would, I think, be extremely useful and increase the number of your readers.

A. E. C.

We should like to carry this idea into practice, for we have beginners and amateurs who personally manage their own collections among our readers, and we should not like them to think that their interests are neglected. The question, however, is not so easy as might at first appear, and we should be glad of further suggestions as to what would be most useful. Cultural methods are, of course, identical, however large or small the collection, and to these our monthly Calendar of Operations is devoted. Perhaps the reason which more than all others has led to this department being somewhat neglected is that so little that is new can be said about it, and that comparative beginners have hesitated in sending their experiences and difficulties, in the belief that they would have but little interest. But it must be remembered that all were beginners once, and we would suggest that the proposed amateur's section should be conducted by amateurs themselves, and a promising subject to begin with would be—"How my collection originated." Such notes would be extremely interesting, and might possibly throw light on the early history of some of our now famous collections, and on some that will be famous in days to come.

BARBARIC METHODS

WHY do so many of our amateurs still persist in the cruel, barbaric practice of "skinning alive" their Orchids? In looking over several small amateur's collections recently I noticed the newly-skinned, bare bulbs, looking terribly unnatural, green, and glossy. I allude to amateurs chiefly, because I cannot think that any really intelligent professional grower would be guilty of such drastic work. At this season—when bad weather puts a stop to outside work—the houses and plants are often subjected to a general cleaning. This in itself is good, but is it really necessary to strip all the outside protecting skin from the old and new bulbs, only for the simple idea of making the bulbs look nicer? This opinion, in point of fact, is open to some question; as it is doubtful if the bulbs do not really look far better in

their natural covering, which serves to protect them from excessive drying by sun or artificial heat. Amongst the arguments for this stripping practice, is that it is necessary to rid the plants of insect pests, and that the skin holds the moisture, thus tending to cause the bulb to decay. In answer to the first excuse, I admit that this in some cases may be necessary. When white scale gets established, it is difficult to eradicate it without removing the skin; but we will assume that, in well-cared-for collections, such instances are few. To the second argument, extenuating circumstances may be urged. Such plants as Cattleya Bowringiana, with its cup-like receptacles, will often hold water; but if this is detrimental, is it not rather owing to defective management of the atmospherical conditions? And, in most cases, excessive moisture will be avoided by just splitting the top of the skin, without stripping it all off. Old garden practices die hard, but we see very little now of the old method of scraping vines, which was so much the rule some years ago. Growers have come to the conclusion that such barbarism is both detrimental and useless. If to vines, then, which have a much harder tissue, why should not the same consideration be shown to Orchids also, which are more tender and succulent? In conclusion, let me appeal to amateurs to leave their C. Mossiæ and C. Schrœderæ in their natural state, when they will find less of that mysterious abeyance of the leading nodes or eyes, often losing a season. The bulbs also will not suffer so much in the resting season.

J. L.

THEODOREA GOMEZOIDES.

A VERY interesting little botanical Orchid flowered with Mr. F. W. Moore at the Royal Botanic Gardens, Glasnevin, in September, 1900, and recently with Sir Trevor Lawrence, at Burford, the latter having received it from M. Binot, Brazil, as Rodriguezia sp. It proves to be Theodorea gomezoides, described by M. Barbosa Rodrigues in 1877 (*Gen. and Sp. Orch. nov.* i. p. 145) as a new genus, and has been recently recognised among Brazilian plants collected by Dr. Glaziou. It belongs to the tribe Oncidieæ, and is allied to Gomeza and the genera of that affinity, of which there are several not often seen in the gardens. The plant has the general habit of some small, slender Oncidium, about five or six inches high, but the flowers are borne in slender arching racemes, of about six to twelve each. The sepals and petals are subconnivent, lanceolate, acute, four to five lines long, and light green in colour, with a broad dark brown line towards the base. The lip is oblong-ovate, acute, somewhat reflexed at the apex, and white, with an orange buff blotch in the centre. It appears to be a free growing little plant, and its appearance in cultivation is interesting.

R. A. ROLFE.

ORCHIDS IN SEASON.

WE have now a most extensive series of winter-blooming Orchids, owing to large introductions of some of the well-known old species, and to the large and constantly increasing class of hybrids raised from them, so that during the autumn and winter months our houses are now almost as gay as during the early summer. The autumn-blooming Calanthes are now making a brave show, the beautiful C. × Veitchii being still one of the most useful, and at the moment of writing it is literally making a blaze of colour.

A fine six-flowered inflorescence of what we take to be a hybrid between Cattleya Bowringiana and C. labiata—hence a form of C. × Portia—is sent from the collection of Sir James Miller, Bart., of Manderston, Duns, N.B., by Mr. Hamilton, and shows how useful a plant it is at this dull season. It has the brilliant colour of both parents, and is fairly intermediate in other respects. It was purchased with the record "Lælia tenebrosa × Cattleya Bowringiana," but the pollen is pure Cattleya, and there is no other trace of Lælia parentage, from which we conclude that some label has gone astray.

A beautiful form of Cattleya Bowringiana is sent from the collection of Reginald Young, Esq., Sefton Park, Liverpool. It is good in shape and very richly coloured, with a pale throat to the lip, closely veined with purple.

Mr. Young also sends some pretty hybrid Paphiopedilums, a group in which he is specially interested. There are the two P. Mastersianum crosses, P. × Lawrenceano-Mastersianum and P. × Endymion, the latter from P. barbatum, and rather the better flower. A new seedling of P. × Tryonianum (P. × Harrisianum giganteum ♀ × P. superbiens Demidoff var. ♂), raised from seed sown in July, 1897, has the dark colour of the former parent largely obliterated. A plant purchased as P. insigne Macfarlanei has the lower part of the dorsal sepal suffused with dusky brown, and thus differs from the original description.

Flowers of the pretty little Epidendrum dichromum are sent from the collection of John W. Arkle, Esq., West Derby, Liverpool. It is a Brazilian species with rose-purple flowers, smaller than those of E. atropurpureum.

A good pure white form of Odontoglossum crispum is sent from the collection of E. J. Lovell, Esq., Oakhurst, Oxted, Surrey, the only brown markings, beside the yellow disc, being on the column and stalk of the lip. A second flower represents a fairly average form. The spike bears twelve flowers, and Mr. Jones remarks that it is a very pretty acquisition at this dull season. Flowers of the beautiful Paphiopedilum insigne Sanderæ and P. i. Harefield Hall var. are also enclosed, together with a good

Cattleya Loddigesii, and seven coloured forms of Lælia anceps, three of which are particularly richly coloured and effective.

SOCIETIES.

ROYAL HORTICULTURAL.

THE last meeting of the year of this Society was held at the Drill Hall, Buckingham Gate, Westminster, on December 9th, and, considering the coldness of the weather, there was a very good show of Orchids.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), was awarded a Silver-gilt Flora Medal for an extremely fine group of Cypripediums, all the plants being well-grown and finely flowered. It contained many fine forms of C. insigne, including C. i. Harefield Hall var., C. i. Sanderæ, C. i. Laura Kimball, and several other yellow forms, C. i. Barryanum, having a very wavy edge to the upper sepal, C. i. corrugatum, with a corrugated lip, and many fine spotted forms, C. × Leeanum Clinkaberryanum, C. × L. giganteum, C. × gigas Corndeani, C. × Lathamianum Bridge Hall var., a very fine form; a well-coloured C. × calloso-Warneri, C. × Euryades incomparabilis, having most of the dorsal sepal of a rich purple tint, C. × E. Bridge Hall var., spotted with deep purple, and others. A splendid example of C. × Arthurianum bearing nine flowers secured a Cultural Commendation.

W. E. Budgett, Esq., Henbury, near Bristol, received a Silver Flora Medal for a very fine group of Cypripediums grown by the exhibitor himself, without the assistance of a gardener, including many fine forms of Cypripedium insigne, both yellow and spotted, C. × Leeanum magnificum and other good forms of Leeanum, C. × Milo, and others.

F. A. Bevan, Esq., Trent Park (gr. Mr. Parr), showed a good Odontoglossum crispum guttatum.

N. C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. H. J. Chapman), exhibited Cypripedium × Actæus punctatissimum, and C. × Leeanum Clinkaberryanum.

C. H. Feiling, Esq., Southgate (gr. Mr. Stocking), showed two Oncidiums of the prætextum group.

J. G. Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), showed the bright yellow Lælia × Mrs. Gratrix Fowler's variety.

Mr. Alfred Gribble, The Plas Gardens, Machynlleth, N. Wales, sent two good forms of Lælia anceps.

G. W. Law-Schofield, Esq., New Hall Hey, Rawtenstall (gr. Mr. Shill), exhibited a good flower of Cypripedium × Evelyn Ames.

W. Thompson, Esq., Walton Grange, Stone, Staffs. (gr. Mr. W. Stevens), exhibited the large Odontoglossum × loochristiense Annie, having

a pale yellow flower, blotched with brown; and Cypripedium insigne Babette, a fine seedling obtained by crossing C. i. punctato-violaceum and C. i. albo-marginatum.

H. S. Leon, Esq., Bletchley (gr. Mr. Hislop), showed Cattleya × Barbara (Bowringiana × Trianæ).

Messrs. J. Veitch & Sons, Chelsea, received a Silver Flora Medal for a fine group, containing many fine Cattleyas and Lælias, together with forms of Cypripedium × Leeanum, C. × Thalia, C. × Œnone, C. × Euryades, and the pretty rose-tinted C. × Katherine (callosum Sanderæ × superbiens), most resembling the former in shape.

Messrs. Hugh Low & Co., Bush Hill Park, staged a group containing Cypripedium insigne Ernesti, C. × Leeanum compactum, C. × Niobe magnificum, C. × Swinburnei magnificum, C. × Actæus, Lælio-cattleya × Whateleyæ, and others.

Mr. A. J. Keeling, The Grange Nurseries, Westgate Hill, Bradford, sent good examples of Cypripedium × bingleyense, and C. × Leeanum, Keeling's variety.

At the meeting of the Scientific Committee, held on November 18th Dr. Masters reported on a drawing of a malformed Cypripedium submitted by Mr. Saunders at a previous meeting. He regarded the flower as an illustration of a common tendency in Orchids to produce their flower segments in whorls of two, the dorsal sepal being replaced by a single petal opposite to the lip and lateral sepals, the remaining organs being absent.

Mr. Odell brought spikes of the South African Stenoglottis longifolia with fasciated stems.

FERTILITY OF HYBRIDS.—Capt. C. C. Hurst sent the following communication:—"In the report of the last meeting of the above committee in the *Gard. Chron.*, 1902, ii., p. 330, under the heading, "Vigour in Hybrids," the following statement was made:—'It was observed that hybrids of Cypripedium Fairrieanum will not cross. According to the records this statement can hardly be accurate, because on sixteen distinct occasions hybrids of C. Fairrieanum have produced offspring which have duly flowered. The following is a list of crosses recorded (for detailed references see the forthcoming *Orchid Stud Book*). (1) Paphiopedilum × vexillarium, a hybrid between P. barbatum and P. Fairrieanum, has been successfully crossed with P. barbatum, P. bellatulum, P. hirsutissimum, P. Spicerianum, P. insigne, P. Stonei, P. × calophyllum. P. × Io, and P. × Williamsianum. (2) P. × Arthurianum, a hybrid between P. insigne and P. Fairrieanum has been successfully crossed with P. Argus, P. Spicerianum, and P. × Leeanum. (3) P. × Niobe, a hybrid between P. Spicerianum and P. Fairrieanum has been successfully crossed with P. insigne, P. Spicerianum, P. ×

orphanum and P. × javanico-superbiens. We may therefore conclude that whatever degree of fertility may be peculiar to hybrids of P. Fairrieanum, it cannot be said that they are absolutely sterile." Mr. Veitch quite corroborated Capt. Hurst's observations.

MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL.

ORCHIDS were well represented at the Chrysanthemum Show of this Society, which was held at St. James' Hall, Manchester, on November 20th, and two following days, one side of the spacious hall being entirely devoted to them.

Messrs. Charlesworth & Co., Bradford, were awarded a Gold Medal for a very fine and well-arranged group of plants. Amongst the choicer hybrids were:—Cypripedium × Baron Schröder (× œnanthum superbum × Fairrieanum), which gained a First-class Certificate, Cypripedium × The Kaiser (insigne punctato-violaceum × i. albo-marginatum), which also gained a First-class Certificate, Cattleya × Germania (granulosa Schofieldiana × Hardyana), C. × Clarkiæ (bicolor × labiata), C. × Portia, C. × suavior, Lælio-cattleya × bletchleyensis, L.-c. × luminosa, and Brassolælia × Helen (Brassavola Digbyana × Lælia tenebrosa), a very distinct variety.

Mr. J. Cypher, Cheltenham, received a Gold Medal for a fine display of plants, amongst these being several good Dendrobium Phalænopsis, a large pan of Cypripedium insigne Sanderæ, C. insigne Sanderianum, C. × Fascinator, and several other choice plants.

Messrs. Hugh Low & Co., Enfield, staged a small but choice group of Orchids, consisting of Cypripedium insigne Harefield Hall var., C. i. Sanderæ, C. × Henry Graves, and Lælio-cattleya × Statteriana (Silver Medal).

W. Duckworth, Esq., Flixton (gr. Mr. Tindall), staged a good group, including various Oncidiums, and some fine plants of Cattleya Dowiana aurea, for which he obtained a Silver-gilt Medal.

Mr. J. Robson, Altrincham, staged a group consisting of Cattleya labiata, many hybrid Cypripedes, and many Oncidiums (Silver Medal).

Mr. W. Holmes, Timperley, exhibited a small but choice collection of plants, including Cypripedium insigne aureum, C. i. Dorothy, C. × Lawre-concolor, and C. × Arthurianum (Bronze Medal).

T. Statter, Esq., Whitefield (gr. Mr. Johnson), staged a charming group of Cypripedes, including a fine plant of C. × triumphans, and several other rare forms (Silver-gilt Medal).

S. Gratrix, Esq., Whalley Range, obtained a First-class Certificate for a fine plant of Cypripedium × Leeanum var. Corona, a form of fine size and of a peculiar green colour.

MASDEVALLIA ROSEA.

ALTHOUGH one of the most beautiful Masdevallias known, this species is not often seen in first-rate condition. The annexed figure, however, of a specimen in the collection of Major General C. B. Lucie-Smith, The

FIG. 9. MASDEVALLIA ROSEA.

Acacias, Worthing, shows what the plant is capable of when well grown. It is perhaps not always recognised that it is one of the coolest-growing species in the genus, as it occurs at very high elevations, where the climate

is naturally cool. The conditions under which this specimen was grown are as follows:—From the end of May to about the beginning of October the cool Orchids are grown in sheltered places in the open air, those loving the most shade being placed in a small court-yard, with the entrance covered with a canvas screen. These open-air shelters are fitted with skeleton frames, on which light canvas shading is stretched, to break the rays of the sun, and the keen winds when the weather is rough. They are placed on a stage erected over a border planted with hardy ferns. During the rest of the year they are grown in a small house, and the temperature is kept rather low, sometimes falling to 45° in cold weather. Various other cool Orchids, which require pretty similar treatment with regard to sun and shade, succeed equally well under this treatment, and flower abundantly year after year.

THE HYBRIDIST.

CATTLEYA × CLARISSA.—This is a chaste and very beautiful hybrid sent from the collection of the Right Hon. J. Chamberlain, M.P., Highbury, Birmingham, by Mr. Mackay. It is believed to have originated from a cross between C. Loddigesii ♀ and C. Mendelii ♂ which was made in the collection, and bears strong evidence of such a parentage. The flower has the general shape of C. Loddigesii, somewhat modified in details, but the colour is of the clearest white, with a large triangular purple blotch on the front lobe, which affords a very striking contrast. The spike has two flowers at present, and when it is fully developed it will be a most beautiful thing.

PAPHIOPEDILUM × OMPHALE.—A pretty hybrid raised in the collection of Reginald Young, Esq., Sefton Park, Liverpool (gr. Mr. Poyntz), from P. tonsum ♀ and P. × Lucie ♂ (Lawrenceanum × ciliolare). The seeds were sown in March, 1898, and the first flower opened in October last The petals are nearly horizontal and strongly ciliate, but almost exactly like P. tonsum in colour and spotting. The dorsal sepal is fairly intermediate between the last-named and P. Lawrenceanum, being light green at the base, with the nerves passing into purple just before reaching the white apex, at which point the purple is somewhat suffused, forming a broad zone. The characters of P. ciliolare are largely obliterated.

LÆLIO-CATTLEYA × GLADYS.—A beautiful hybrid raised in the collection of E. V. R. Thayer, Esq., S. Lancaster, Mass., U.S.A., from Lælia tenebrosa × Cattleya Gaskelliana alba, and described in *American Gardening* for September 6th last (p. 574) by Mr. Orpet. L.-c. × Eva, exhibited by Messrs. James Veitch & Sons on October 21st last, must be considered as a form of the same.

CALENDAR OF OPERATIONS FOR JANUARY.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

THE temperatures in the various departments should be kept as steady as possible for the next few weeks; the following will serve as a useful guide to this end.

COOL HOUSE.—Day, 50° to 60°; night, 45° to 50°.

INTERMEDIATE HOUSE.—Day, 55° to 65°; night, 50° to 55°.

EAST INDIAN HOUSE.—Day, 60° to 70°; night, 55° to 60°.

COOL HOUSE.—In this department air should be admitted as freely as the outside conditions will permit. Water must also be applied sparingly to plants that are dormant as well as to those in an active state. Where this régime is carried out, it will be found, if the plants are carefully examined after the winter is past, that the roots and plants themselves are in a healthier condition than would have been the case had they been kept in a wet condition. This, again, will show its advantage at a later date, for plants so kept will be found to grow more quickly and stronger, thus enabling better results to be obtained. Damping down once a day may be necessary, according to conditions prevailing outside; should, however, the weather be damp and mild none need be done.

CATTLEYA, INTERMEDIATE AND EAST INDIAN HOUSES.—The advice given above is equally applicable to these, excepting that when a great amount of fire heat is necessary, the greater also must be the amount of water distributed for evaporating purposes. Cypripediums belonging to the warm section comprise a large class of beautiful and useful Orchids, a great many of which may now require attention, as new growths are advancing, and these will quickly be emitting new roots. Turn out the plants that are needing attention, and remove all decayed compost and as many of the dead roots as possible. Then select pots of suitable size, and insert the plant to be potted, working in a quantity of crocks amongst the roots to within a few inches of the rim, and fill the remaining space with a compost of equal parts of peat and sphagnum, and a little fibrous loam, together with small pieces of sandstone and broken crocks. This will be found a suitable compost for such species as C. Stonei, C. Sanderianum, C. Rothschildianum, C. philippinense, and most of the Selenipedium group.

LÆLIA JONGHEANA.—This lovely species grows suspended in a light part of the Intermediate house, and has its flower buds already showing. These may be encouraged by slightly increasing the water supply as the flowers develop. When growth is developed and matured, we suspend them in a light part of the Cool house, giving little water until they commence to grow in the autumn. With this treatment they succeed very well, and flowers are generally fairly plentiful.

DENDROBIUMS.—A great number of the deciduous and semi-deciduous kinds are now pushing out flower-buds, and may be removed to slightly warmer quarters. Plants left too long in their resting quarters never develop flowers of good size and colour. The following species, varieties and hybrids are now developing their flowers here. D. aureum, D. nobile, D. Wardianum, D. crassinode, D. Findlayanum, D. Linawianum, D. × Ainsworthii and its var. Leechianum, D. × Clio, D. × Wiganiæ, D. × Cybele, D. × Sybil, D. × melanodiscus vars. Rainbow and chrysodiscus D. × xanthocentron, D. × Burberryanum, and D. × Dominianum. Many of these are commencing new growth, and where this is the case water must be applied carefully, especially where a proper temperature cannot be afforded and kept up. In this case water should be given only when the plants are really dry; more can be applied as the days lengthen, and in cases of bright sunshine.

CATTLEYAS TRIANÆ AND PERCIVALIANA are now developing flower spikes, and may be afforded more water, placing them in a light position, and keeping the atmosphere of the house more genial. C. Mendelii, C. Mossiæ and C. Schrœderæ are still inactive, and should be given only sufficient water to keep their pseudobulbs firm. Any plants of C. Mossiæ, C. Mendelii or Lælia purpurata that have not yet finished growth should be removed to the warmest house, and placed as near the glass as possible, to help them on.

EULOPHIELLA ELIZABETHÆ has now completed its growth, and spikes will begin to push from the base of the newly made pseudobulbs. A lovely Orchid, and one very rarely met with in satisfactory condition, it may be termed a very difficult species to deal with, unless the right conditions are found. A great many were imported some few years ago, but doubtless owing to the lack of knowledge as to how these plants grew in their native habitat, a good many were lost. Imported plants should be thoroughly cleansed on arrival, and placed in baskets amongst crocks, and surfaced over with a layer of sphagnum moss. Roots will quickly appear, when the moss may be picked away, and a compost of equal parts of peat and moss may be given. The plants should always be grown in the warmest house, occupying a shady position, for this species enjoys plenty of heat and moisture, and should never be allowed to get really dry, even in winter.

DIACRIUM BICORNUTUM, another lovely species of the warm house, and one equally difficult to grow in good condition for a long period, has also completed growth, and the spikes are now appearing. This Orchid enjoys more sunlight than the Eulophiella, and should now be given the lightest position available in this house. In the growing season give plenty of heat and moisture, but on completion of growth keep slightly on the dry side.

LÆLIA ANCEPS and its many varieties are now giving a grand display of their beautiful flowers, which are very valuable at this time of year. The albinos are rather later in developing their flowers this season, one reason for this being the lateness in completing growth, owing to the sunless summer. Plants now in flower should be given a temperature of 60°, and kept on the dry side. When out of flower give them a long cool rest, affording just sufficient water to keep their pseudobulbs firm. The same remark applies to L. Gouldiana, L. autumnalis, and L. albida.

CALANTHES.—The deciduous Calanthes were also a long time in developing their spikes, but by this escaped the fogs which were prevalent here in December, and are giving us a nice show at the present time. Keep them dry until they are ready for potting later on, when instructions will be given on this process.

INSECT PESTS.—The more one has to do with Orchids, it is the more readily seen that the fewer of these pests that are about the better it is for the health and good culture of our favourites. That there are many of these destructive insects is only too true, yet with the many useful preparations now on sale, it is now a much easier matter to cope with them than formerly. We know, from the experiences of those who have suffered by the attacks of such pests as are peculiar to and imported with certain species, the importance of exterminating them before much harm has been done. A short practical experience with Orchids brings one to know that certain insects infest certain species, and, knowing this, every newly imported consignment ought to be thoroughly examined, and all infected bulbs cut off and burned, to prevent trouble in the future. They should also be cleansed in warm soapy water, to rid them of dirt and any dormant eggs which may be concealed.

COCKROACHES.—One of the greatest enemies to Orchid plants in the West Indies is said to be the American cockroach, Blatta americana, and numerous have been the traps devised and poisons compounded to keep these ubiquitous enemies in check. Mr. J. H. Hart remarks (*Bull. Trinidad Bot. Gard.*, Oct., 1902) that in Trinidad the pitchers of various species of Nepenthes have proved very effective traps, as the insects are attracted by the liquid which they contain, and falling in are drowned, and ultimately digested. So useful have the Nepenthes been found for this purpose, that it has been "deemed advisable to largely increase the number of these plants among Orchids, as the damage done by the cockroach has been largely decreased by their aid." The climate of Trinidad has proved suitable for these plants, which are grown in hanging baskets in a similar manner to Orchids.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, during January, on the 13th and 27th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Societies will hold meetings at the Coal Exchange, Manchester, on January 8th and 22nd. The Orchid Committee meets at 11.30 a.m., and the exhibits are open to inspection from 12.30 to 3 p.m.

Mr. A. J. Keeling, The Grange Nurseries, Westgate Hill, Bradford, writes that he has taken his three sons, Arthur Owen, Alfred Edmond, and William Archie, into the business, which will in future be carried on under the style of A. J. Keeling & Sons.

A flower of a very pretty seedling Cattleya, "C. Trianæ × bicolor," is sent from the collection of the Right Hon. J. Chamberlain, M.P., Highbury, Birmingham, by Mr. Mackay. It is a form of C. × Pandora, which flowered with Messrs. James Veitch & Sons, in 1900.

Mrs. Ross, of Florence, has just flowered a good form of Paphiopedilum radians, a hybrid between P. Charlesworthii and P. Spicerianum. Mrs. Ross writes:—The flower is as large as a fine Spicerianum, and much resembles that species, but the dorsal sepal is dark yellow-green at the base, with a magenta flush fading into pure white at the edges, and a dark magenta line up the middle. The petals are yellow green with light chestnut markings, and the slipper is chestnut coloured. It is extremely pretty. It is five years old, and has five leaves.

A very curious seedling with the record "L. cinnabarina × autumnalis" is sent from the collection of E. F. Clark, Esq., of Teignmouth, which chiefly differs from L. autumnalis in having narrower sepals and petals, and a large blotch of yellow in the throat. It was sent last year, but owing to its great resemblance to L. autumnalis, and the strong influence usually exerted by L. cinnabarina, the parentage was suspected. Mr. Clark, however, remarks that the bulbs are certainly intermediate, being longer and more pear-shaped than in L. autumnalis; and now a similar hybrid is figured in the *Dictionnaire des Orchidées* under the name of Lælia × autumno-cinnabarina, which is said to have been raised in the collection of Sir Trevor Lawrence from L. autumnalis ♀ × L. cinnabarina ♂. In each case the colour of L. cinnabarina is almost entirely obliterated, which is very unusual.

Three good forms of "Odontoglossum × Harryano-crispum" are sent from the collection of J. Bradshaw, Esq., The Grange, Southgate, and Mr. Bradshaw remarks that they were very effective, as each had thirteen or fourteen flowers on the spike. "O × Wilckeanum Triumph" is also a fine thing, being very heavily blotched with chocolate brown on a light ground, and the petals well toothed. This also had fourteen flowers on the spike, and all afford evidence of excellent culture.

The December number of the *Dictionnaire des Orchidées* contains figures of the following Orchids:—Bulbophyllum Dearei, Cattleya × flavescens, C. Lueddemanniana var. Stanleyi, Cirrhopetalum Mastersianum, Cypripedium × Syrinx, Dendrobium chrystoxum var. suavissimum, Lælia × autumno-cinnabarina, L. × juvenilis var. Fournieri, Maxillaria rufescens, Odontoglossum crispum var Leoniæ, Selenipedium Schlimii. Stanhopea graveolens, and Trigonidium Egertonianum.

A beautiful inflorescence of Lælio-cattleya × Diogenes (L. cinnabarina × C. Leopoldi) is sent from the collection of Mrs. Grogan, Slaney Park, Baltinglass, Co. Wicklow (gr. Mr. W. F. Oliver), together with a fine form of Paphiopedilum × Leeanum.

LÆLIA ANCEPS AND ITS VARIETIES.

MR. DE BARRI CRAWSHAY has written an article under the above title (*Gard. Chron.*, 1902, ii, p. 414), in which he remarks:—"After many years careful study of this beautiful Mexican Lælia, I have come to the conclusion that many of the so-called varieties of it are no more to be considered as its varieties than are the various subspecies, or so-called varieties of Cattleya labiata." Those which he raises to the rank of species are Dawsoni; Hollidayana, with vars. Ashworthiana, Crawshayana, Simondsii, White Queen and waddoniensis; Sanderiana, with var. Stella: Schrœderæ, with vars. Amesiana, Ballantineana, Crawshayana, and Theodora: and, lastly, Schrœderiana, with which Hyeana is synonymous. The remaining named forms, of which about fifty-five are enumerated, are retained as varieties of L. anceps. It would be interesting to know what are the precise differences on which this arrangement is based. The wide range of variation of L. anceps—using the term in the broad sense—is well known, but we are unable to find differences which are at all comparable with those which separate C. labiata from, let us say, C. Mossiæ, C. Dowiana, and C. Eldorado. As Mr. Crawshay grows so many of the plants mentioned, it would be extremely interesting if he would show the relations of the different forms to each other, and the differences between them, for which purpose an alphabetical arrangement is wholly unsuited.

ORCHID PORTRAITS.

(WE are making a slight alteration in our method of citation. Instead of giving the date with the number of the volume in addition, in the case of those works which publish two volumes a year, we propose to add the figures i. or ii. to indicate the first and second of the two annual volumes).

ARACHNANTHE CATHCARTII, Benth.—*Wien Ill. Gart. Zeit.*, 1902, p. 421, t. 4.

CATTLEYA × BRYMERIANA, Rchb. f.—*Gartenfl.*, 1902, p. 617, t. 1505.

CATTLEYA LABIATA AMESIANA.—*Garden*, 1902, ii., p. 401, with fig.

CIRRHOPETALUM HOOKERI, Duthie.—*Bot. Mag.*, t. 7869.

CYPRIPEDIUM INSIGNE HAREFIELD HALL VAR.—*Journ. Hort.*, 1902, ii., p. 535, with fig. VAR. HOLFORDIANUM.—*Gard. Chron.*, 1902, i., p. 413, fig. 141.

CYPRIPEDIUM NIVEUM.—*Journ. Hort.*, 1902, ii., pp. 558, 559, with fig.

CYPRIPEDIUM × WM. LLOYD.—*Journ. Hort.*, 1902, ii., p. 579, with fig.

LÆLIO-CATTLEYA × HAROLDIANA SUPERBA.—*Gard. Mag.*, 1902, pp. 832, 833, with fig.

ODONTOGLOSSUM GRANDE.—*Journ. Hort.*, 1902, ii., p. 551, with fig.

ODONTOGLOSSUM × WILCKEANUM VAR. ROTHSCHILDIANUM.—*Gard. Chron.*, 1902, ii., p. 419, with Suppl. fig.

VANDA KIMBALLIANA.—*Journ. Hort.*, 1902, ii., p. 579, with fig.

CORRESPONDENCE.

(Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.)

H.J.H. "Paphiopedilum × Harrisianum superbum crossed with unknown" has yielded a large dark flower of good shape, but it is difficult to suggest the second parent. You say that flowers of the first named were "fertilised with a number of good varieties, some unknown, and the records in some cases not kept, in others mislaid." Was not the one called Charles Canham among them? The percentage of P. villosum blood is apparently not reduced, and the lower fourth of the petals bears spots suggestive of P. superbiens. It should be possible to ascertain what was used, and in any case the seedling should be taken care of.

J.H. Maxillaria punctata, Lodd.

E.K. A form of Paphiopedilum callosum with rather elongated narrow petals, which we have seen before. You confirm the record that it comes with P. callosum, and therefore cannot be a natural hybrid. The other is Cymbidium Dayanum (Simonsianum).

E.F.C. The large flower is Zygopetalum intermedium, which is often cultivated under the name of Z. Mackayi. The smaller one is apparently Z. Mosenianum, Rodr. Is not the plant more caulescent than usual?

W.M.A. Ansellia africana.

E.R. Odontoglossum Hunnewellianum.

Photographs received, with thanks. J. M.

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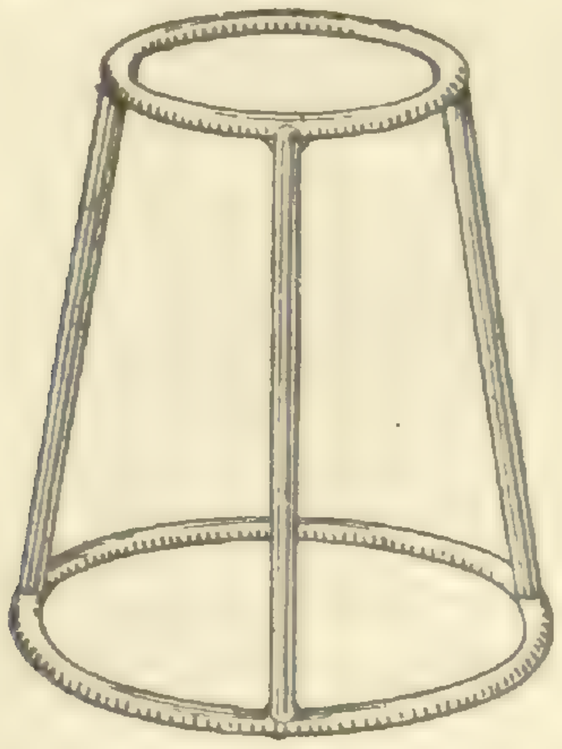

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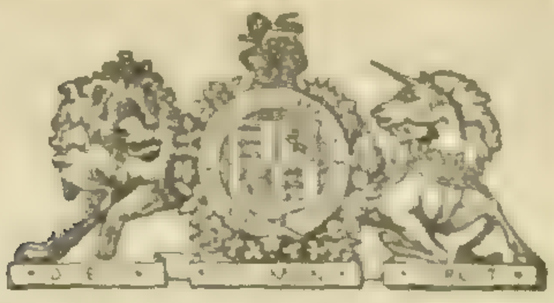

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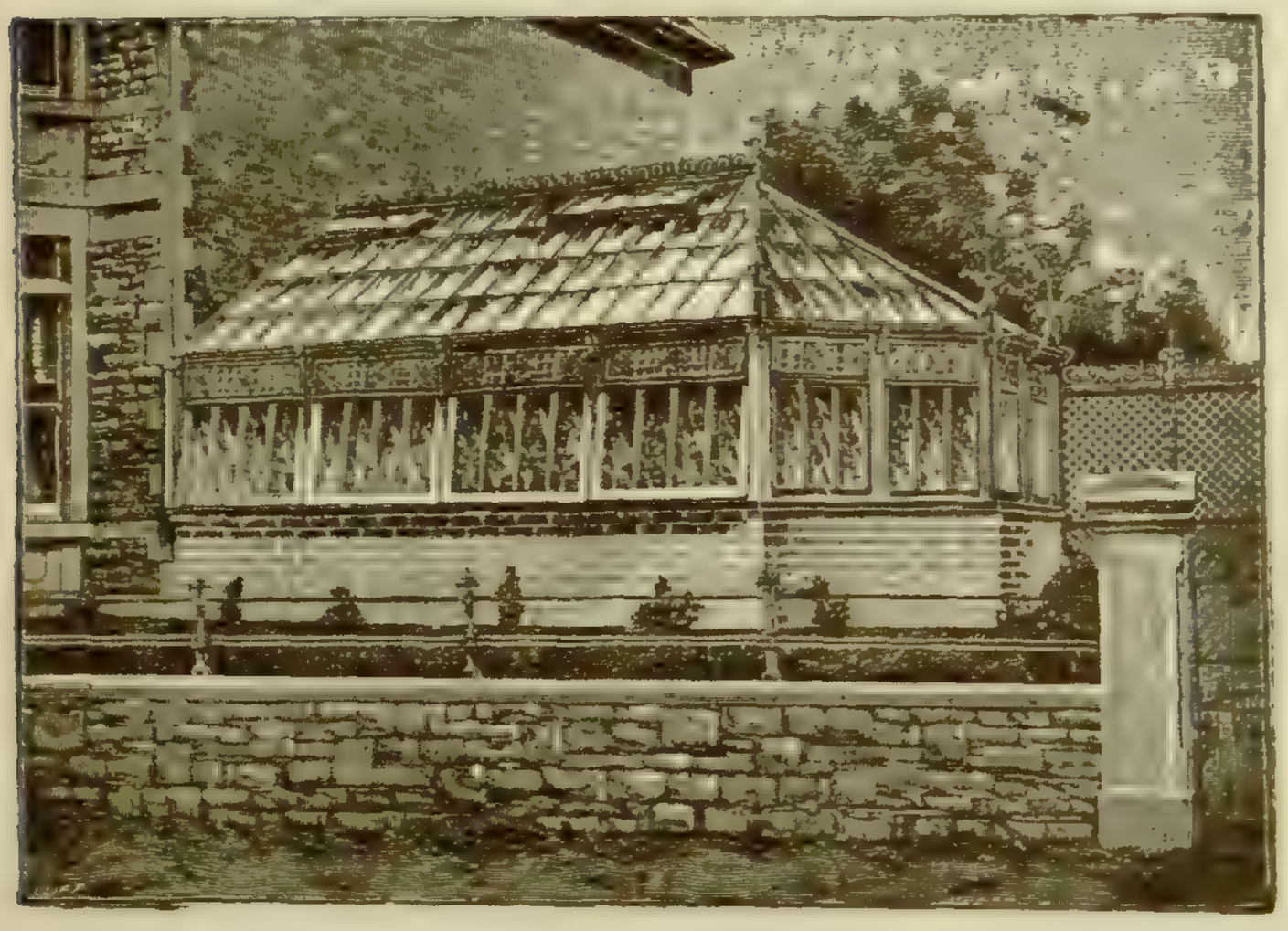

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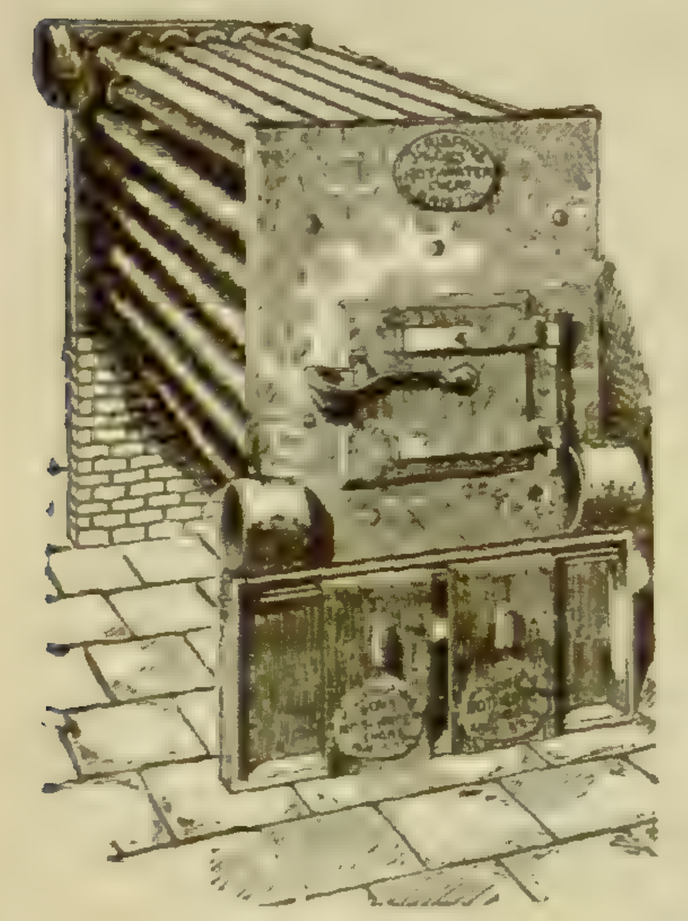

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"A deep red-coloured fruit, with prominent seeds and rich flavour."—*Gardeners' Chronicle.*

"A good flavoured handsome dark-coloured fruit."—*The Garden.*

"A handsome dark-fruited variety, of good flavour."—*Journal of the Royal Horticultural Society*, vol. xxvii., Dec., 1901, p. 151.

JAMES VEITCH & SONS, LTD.,

Royal Exotic Nursery, *CHELSEA.*

THE ORCHID REVIEW.

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EDITORIAL.

WE have to thank our contemporaries, and a large number of readers, for kindly notices and congratulations on the completion of our tenth volume, together with suggestions for the future, which we shall endeavour to act upon so far as circumstances permit. As it is impossible to reply to our esteemed correspondents individually, we take this opportunity of commenting upon the different points raised. The importance and value of the work have been universally recognized, and in this connection comes the question of compiling a select Index to the past ten volumes, to which several references have been made.

A SELECT INDEX.

The utility of compiling such a select Index has been urged from several quarters, as a guide to the many items of permanent value which have been recorded during the past epoch-making decade, and should the amount of support warrant such a course we will endeavour to make the necessary arrangements.

AN AMATEUR'S SECTION.

The suggestion of "A.E.C." to establish an Amateur's section has brought a greater number of replies than we anticipated, and it is quite evident that such a department would be popular. There are numerous signs that these beautiful plants are becoming increasingly popular, and great progress has been made in their culture during the last few years. Some of the reasons for this increasing popularity are very well pointed out by an amateur enthusiast under the heading, "How my collection originated," on another page, and the need for information of an elementary kind is easily explained. It is not every beginner who can secure the services of an expert Orchid grower, and there are many who derive great pleasure from personally attending to their own collections. We are very pleased to find that many such have found the *Review* of great assistance, and we will bear in mind their suggestions, although it may not be practicable to make the classification suggested by the title. But it is the information rather than the name that is of importance.

EXCHANGE OF DUPLICATES.

We have only received one further letter with respect to a proposed section for the exchange of duplicates, and this from an amateur who rather deprecates the idea, on account of difficulties likely to be encountered. Perhaps if one of those who suggested the idea were to forward a note of his duplicates it would be easier to see how the idea would work.

ILLUSTRATIONS.

We have received some very complimentary references to our illustrations, and particularly to the series of Odontoglossum crispum varieties given in our last number. This is the most popular Orchid in cultivation, and the idea of bringing together a series of its best forms, illustrated by photography, has been much appeciated, as they form a useful standard for comparison. We shall keep this department of the *Review* to the front as much as possible, and in this the kind co-operation of our readers will be much appreciated. To those who have asked for advice in this connection we would say that the subjects should be judiciously selected, and should be printed upon quite smooth paper, with the details well defined, and against a contrasted background. Paper with a matte surface is quite unsuitable for reproduction by the half-tone process.

HYBRIDS.

The subject which has got most out of hand is the hybridists' department, in which progress is so rapid that it is almost impossible to keep in touch with all the details, but a special arrangement is being made to cope with the difficulty, of which particulars will shortly be given.

RAISING OF SEEDLINGS.

We may also mention a desire that has been expressed for further particulars respecting the raising of seedlings. The subject has not been neglected by any means, as a glance through our back volumes will show, and with respect to Odontoglossums a very important article, by one of our most successful raisers, appears on another page, accompanied by a photograph. It has hitherto been difficult to obtain any particulars respecting raising Odontoglossums, and hence the article will be specially welcomed. It is evident that great interest is being taken in this branch of the subject, and we will endeavour to give further details.

It is gratifying to find that the work is so highly appreciated, and the number of suggestions received affords evidence of the wide interest that is taken in the cultivation of this beautiful group of plants.

ODONTOGLOSSUM × LEPIDUM.

A STRIKING form of this pretty natural hybrid between Odontoglossum Pescatorei and O. Lindleyanum has just appeared with Messrs. F. Sander & Sons, at St. Albans, the petals of the flower sent being without a trace of spotting, but the sepals bear large irregular chestnut brown blotches, and there is one large red-brown blotch in front of the lip's crest, the contrast being very effective. The ground colour of the flower is ivory white, tinged with yellow at the margins of the segments, and the shape and details of the column wings and crest are fairly intermediate between those of the two parents. O. × stauroides and O. × elegantius are forms of the same hybrid, whose history has already been given (*O. R.*, ii., pp. 140, 141; ix., p. 56), and I now believe that O. × Brandtii also belongs here, not to O. × excellens, as formerly supposed, though I have only seen the published figure (*Gartenfl.* 1889, pp. 378, 537, t. 1308).

R. A. ROLFE.

EPIDENDRUM CHIONEUM.

Too frequently species which are well known to botanists from herbarium specimens receive a new name on their first appearance in cultivation, and this has been the case with the present one, which is now in flower at Kew. It was described by Lindley, in 1845 (*Bot. Reg.*, xxxi., Misc., p. 73), from specimens collected by M. J. Linden at Parano, between Ventra Quemada and Tunja, in New Grenada, at 12,000 feet altitude. It was noted as having the flowers pure white, in small close heads, an inch or more long. For its introduction to cultivation we are indebted to M. Fl. Claes, of Brussels, but unfortunately it has been re-described by M. Cogniaux as E. Claesianum (*Gard. Chron.*, 1901, i., p. 70, fig. 27) It is noted as a charming species, growing in sturdy clumps, and very floriferous. It received a Botanical Certificate from the Royal Horticultural Society on January 15th, 1900, and is said to have first flowered in cultivation in the previous November. M. Claes is said to have collected it in Colombia, in 1899, at an altitude of 6,825 feet.

R. A. ROLFE.

LYCASTE SKINNERI.

A TWIN-FLOWERED scape of Lycaste Skinneri alba was exhibited by J. Bradshaw, Esq., The Grange, Southgate, at the R.H.S. meeting on January 27th; together with a plant of L. S. Enchantress showing twin bulbs, both of them being very unusual and interesting occurrences. Mr. Bradshaw sends the following particulars:—"L. Skinneri alba threw up

four scapes from the same bulb, and one of these produced two flowers on the same stalk, which is quite novel to me. L. S. Enchantress at the commencement of the season made an enormous growth from one of the leads, and this ultimately developed into two fine bulbs joined only at the base. Both the bulbs are now flowering." The latter peculiarity has probably arisen from fission of the growth at a very early stage. The bulb appears to have been divided longitudinally through its shortest diameter, and the two halves are flattened at their adjacent sides. It is probably an accidental occurrence, but it will be interesting to see whether each half produces a new growth next year.

EVENTS OF 1902.

CONFORMABLY to custom at this season, we may glance back at the events of the past year, and we again find evidence of steady progress, both in things cultural and in the introduction of novelties, though the latter have come almost, though not quite, entirely from the hands of the hybridist. The most striking event of the year was the flowering, in the Kew collection, of the remarkable Cymbidium rhodochilum, introduced from Madagascar by M. Warpur, as described at page 184 of our last volume. The large obcordate crimson front lobe of the lip is quite a novel character among cultivated Cymbidiums, and renders it very distinct and handsome. Cynorchis villosa is another very distinct and pretty Madagascar introduction of M. Warpur's, which flowered at Kew, and was figured at t. 7845 of the *Botanical Magazine*. By a singular coincidence, a third Madagascar plant also flowered for the first time in cultivation, namely, Bulbophyllum Hamelinii, in the Royal Botanic Garden, Glasnevin, this curious plant having been introduced from Madagascar some nine years previously by M. Hamelin, of Eulophiella renown. It was described at page 284 of our last volume. Chondrobollea × Froebeliana is a remarkable natural hybrid between Chondrorhyncha Chestertoni and Bollea cœlestis, which flowered with M. Otto Froebel, at Zurich. The first appearance of the female flowers of Catasetum quadridens, on the unique plant at Kew, may also be mentioned.

HYBRIDS.

Novelties among hybrids have been very numerous, and we may first mention the two remarkable generic crosses, Leptolælia × Veitchii and Zygonisia × Rolfeana, raised by Messrs. James Veitch & Sons, and Messrs. F. Sander & Sons, respectively. Four fine hybrids of Brassavola Digbyana have also appeared, namely, Brassocattleya × Leemanniæ, (figured at page 57 of the present issue), B.-c. × Chamberlainiæ, B.-c. × Mariæ, and Brassolælia × Helen (figured at page 169 of our last volume):

also two from B. glauca, namely, Brassocattleya × Orpheus and Brassolælia × Clio. Lælio-cattleya × Choletiana and Lælia × Nemesis are two interesting hybrids from Lælia superbiens. M. Ch. Vuylsteke has added to his former triumphs by flowering Odontoglossum × bellatulum, O. × Vuylstekei, and four forms of O. × armainvillierense, of which the superb O. × a. ardentissimum was figured at page 209 of our last volume, while O. × Queen Alexandra flowered in the collection of J. Rutherford, Esq. Other interesting novelties are Sophrolælia × heatonensis, S.-l. × Psyche, Dendrobium × Ophir, D. × Hunteri, the first hybrid from D. Brymerianum, Zygopetalum × Roeblingianum, Epilælia × Sylvia. Lælio-cattleya × Queen Alexandra, L.-c. × Ira, the first hybrid from Lælia longipes, L.-c. × Hodgkinsonæ, and various other Lælio-cattleyas, Cattleyas and Paphiopedilums, which represent substantial progress in this department.

CERTIFICATED ORCHIDS.

The number of First-class Certificates awarded by the Royal Horticultural Society is again in excess of the previous year, forty plants having gained this distinction during 1902, namely, thirteen Odontoglossums, six Lælio-cattleyas, five Cattleyas, four Paphiopedilums, three Brassocattleyas, two Lælias, and one each of Brassolælia, Miltonia, Oncidium, Phalænopsis, Sophrolælia, *Zygocolax*, and *Zygopetalum*. It is a significant fact that over half these plants are hybrids of artificial origin, and six others are natural hybrids. The plants which received Awards of Merit are still more numerous, but these and the numerous Certificated plants of the Manchester Orchid Society must be passed over.

USE OF LEAF-MOULD.

The use of leaf-mould as an ingredient in the potting compost for Orchids has largely increased during the year, and many growers have expressed their satisfaction with the results. It seems to be generally agreed that if judiciously mixed with other ingredients, so as to insure the right mechanical condition of the compost, it will be an invaluable adjunct to Orchid culture.

SEEDLING ODONTOGLOSSUMS.

Seedling Odontoglossums have come to the front during the past year in a way which suggests that the difficulties formerly encountered in raising these plants have now been overcome. Besides those which were exhibited in flower at the Temple Show, and which have already been mentioned, we have the remarkable batch of six hundred seedlings in the collection of W. Thompson, Esq., of which we are now able to give an illustration (page 41), and we know that they are being successfully raised in some other collections. This circumstance is likely to give an additional stimulus to the cultivation of these beautiful plants.

MENDEL'S LAW OF INHERITANCE.

The question of Mendel's Law of Inheritance has been considerably discussed in connection with hybrid Orchids, and some remarkable cases of variation among secondary hybrids have been noticed, of which it is supposed to afford an explanation. A forthcoming paper by Captain C. C. Hurst is awaited with interest, as hybridists are anxious to know what may be the practical application of the theory. It is a complex but very important biological problem, and Orchid hybridists are likely to supply some very important data towards its solution.

LOSSES DURING THE YEAR.

The losses by death during the year have been heavy, and include such well-known names as Mrs. Briggs Bury, a most enthusiastic amateur, H. J. Ross, of Florence, Henry Tate, Captain Hincks, the successful raiser of Masdevallias, Robert Tunstill, the Ven. Archdeacon Rawstone, William Bull, the well-known nurseryman and importer of Orchids, E. Rodigas, and V. Faus, formerly gardener to Baron Hruby. Owing to this and other causes several well-known collections have been dispersed, but others have been commenced, and thus the ranks are being gradually filled up by accessions from outside.

The past year has been one of marked progress, and we may hope that the one now commenced may be equally distinguished. The supply of novelties seems likely to increase, owing to the extension of hybridisation, and this will afford materials for selection and further progress; while the experiments being made in the cultural department also promise to yield very important results, and both will conduce to the increased popularity of this beautiful family of plants.

HOW MY COLLECTION ORIGINATED.

I HAVE had a small greenhouse for many years, and at different times have tried to grow roses, vines, tomatoes, and the usual mixed collections of amateurs, but each different effort seemed to pall upon me, and a year or two's trial satisfied me with each species, and I wanted a change. About four years ago I came across Mr. Burberry's *Amateur Orchid Cultivator's Guide Book*, and a glance through it fired me with a desire to grow Orchids. I was offered about a score of plants by a friend who had grown tired of them, and I carried them home with eagerness. I had then only a small conservatory, 20 feet by 12 feet, with a lantern roof, and standing 12 feet high at the ridge. I was very soon told in my search for knowledge that my house was most unsuitable, and that I might as well abandon any hope of growing Orchids successfully in it, but I read Mr. Burberry's book exhaustively, and concluded that with care and attention the structure did

not matter so much, and at any rate I determined to try. I found the cheapest way to stock my house was to purchase imported plants, but on all hands was advised to begin with established or at any rate semi-established plants, in order that I might obtain bloom forthwith, and so keep my enthusiasm alive until I had grasped the methods of culture, and was able to give that extra care and that special knowledge which the culture of newly-imported plants requires. But looking back at my past efforts in horticulture and the way in which I had wearied of my plants, and considering that I might tire equally soon of plants the flowers of which I knew beforehand, I finally decided on trying imported plants, since I should if successful with them have my interest and enthusiasm kept alive by not knowing quite what novelty I might unearth, and, on the other hand, if I failed altogether and had to abandon the cult, the monetary loss to me would not be so heavy. I therefore gradually acquired a batch of imported plants at the weekly sales, and have now about four hundred small plants in my conservatory and in a small lean-to house which I erected originally for a resting house. Like all novices, I wanted to have too many species, and altogether I got a very mixed lot, from Dendrobes and Cattleyas to Lycastes, Lælias, Oncids, and Odontoglots, and if I have not been successful with all I have done fairly well all round. They have afforded me a vast amount of pleasure and recreation, and an ever increasing interest and enthusiasm, quite different from the waning interest I had previously experienced in horticulture, and I now feel that for amateurs who, like myself, do their own work there is no class of plants so interesting, so inexpensive, and so cleanly to handle in cultivation as Orchids.

For the first year or two, of course, my flowers were few and far between, and I lost a certain though only a small percentage of plants altogether, but I am now hardly ever without flowers, and occasionally have quite a good display, and as a test of my success I may mention that in 1901 I took a third, and last year a second prize at the Blackburn Horticultural Society's show for a table of Orchids. I live in an exceptionally exposed situation, where for eight or nine months every year the weather is cold and very boisterous, hence I have much to contend with to maintain anything like regular temperatures; still my plants flourish and look better and better every year, and yield better results, while I assure all my amateur friends now that Orchids are the only plants worth growing.

The only drawback, to my mind, is that so many of their beautiful flowers lack a perfume. Old growers say to me, "What do you want with perfume when you have such exquisite variations in color?" and they hint that I am unreasonable and want too much. That may be so, and the beauty of the flowers and their lasting qualities no doubt are satisfactory enough; but how much more satisfactory they would be if accompanied

by a perfume! As far as my observation goes, this aspect does not appeal to our hybridists, and I have heard of no crosses having been made with the object of transferring a perfume. Some time ago I crossed Odontoglossum triumphans, also Cattleya intermedia and Oncidium Marshallianum, with pollen from Burlingtonia fragrans. My professional friends smiled at these crosses, and expected nothing from them; but in due course a fine seed pod developed on each species, and in time ripened and burst, full of apparently good seed. I sowed some out of each pod a few months ago, but so far I have not had any results. It may be too soon to expect seedlings yet, but the seed was pronounced by an expert to be apparently all right, and capable of germination; and if it does fail, I shall be more inclined to think it is because of my total lack of experience in the sowing of the seed rather than the fault of the seed itself.

I have followed the notes on the subject of leaf-mould in the REVIEW with interest, and in the spring of last year I decided to give it a trial. The result was good with Oncidiums, but more particularly so with Odontoglossum grande. I have about a score plants of these in five-inch pots, out of which in previous years I flowered two or three only. Last spring I potted them in a mixture of oak and beech leaves collected the previous November, and which after collecting I had steeped for a month in a tub of very weak liquid cow dung. The result has been most flattering. Almost every plant bloomed last autumn, with three and four large flowers on every spike, while the bulbs finished up twice as large as in previous years, and in some cases there were breaks from old back bulbs which developed nice bulbs. The other day (January 10th) I turned a few of the plants out. They were perfectly dry, having had no water for the last month or more, and I found the roots in every case had reached the bottom of the pots, right through the centre of the compost, and were in a healthy, vigorous condition, and the compost quite fresh and sweet.

On the other hand, about 40 plants of Lælia Jongheana, which I potted in leaf mould (not steeped in the liquid dung in this case) have not done well, and on turning out the plants I find the roots have mostly rotted, though I have kept them well on the dry side. This species seems to be peculiarly liable to damp off, and in my experience the roots like to ramble in the air outside the pots; so I conclude that leaf-mould is not a suitable compost for the species.

This has been an exceptionally cold and wet year with me, unfavourable to almost every species, hence I have been much gratified by my success with Odontoglossum grande, and I am now trying leaf-mould with other Odontos, and I should welcome the experience of other amateurs on the subject.

ELLIS D. LITTLE.

"Beechwood," Rishton, Lancs.

SEEDLING ODONTOGLOSSUMS.

WE have now much pleasure in reproducing a photograph showing the remarkable batch of six hundred seedling Odontoglossums in the collection

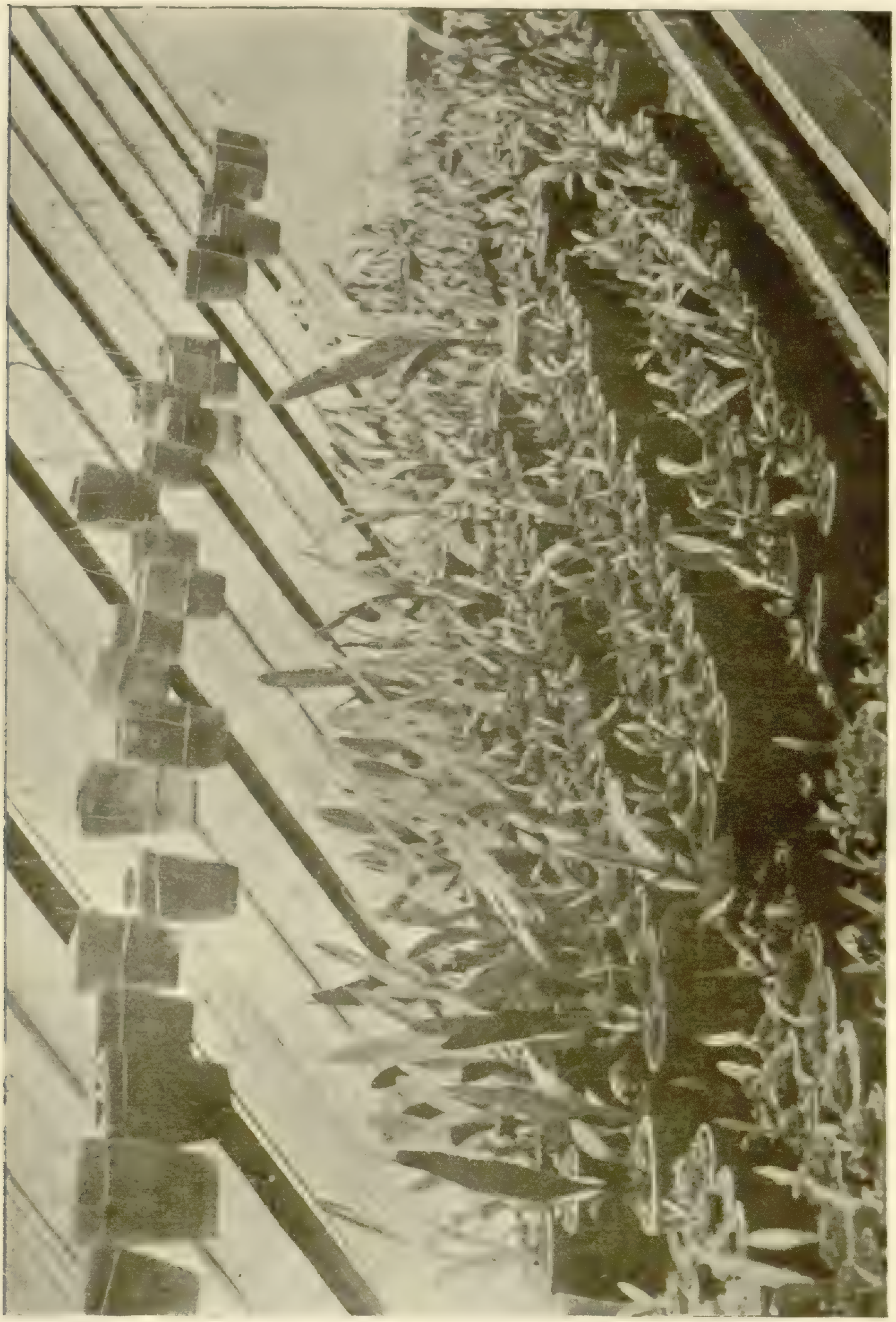

FIG. 10. SEEDLING ODONTOGLOSSUMS AT WALTON GRANGE.

of W. Thompson, Esq., Walton Grange, Stone, to which allusion was made at page 355 of our last volume. The photograph was taken and kindly forwarded by Mr. Stevens, who writes as follows:—

"I find that seeds germinate pretty freely almost anywhere in a cool house, on pots with other plants in, or on calico or flannel placed on pots stuffed tight with moss, but as soon as they have formed a little corm they want to be moved on to pots of moss, and hung up near the light. During winter they require all the sun they can get, but as the sun gets more power they require plenty of care and watching, so as not to over-water or shrivel them up. When large enough I single them out into finger pots, and plunge them in larger pots filled with moss, so as to keep them in an equable condition as regards moisture, and when they begin to root they may be considered safe, always with the exception of insect pests. Thrips will soon make short work with the tiny plants, and must be kept down, but I consider the greatest pest of all is a small black midge, which lays its eggs in the compost, and the grub when hatched out feeds on all it can find in the pots. I once lost a nice batch of seedlings of O. Rossii majus × Pescatorei in a single night, when just coming into leaf, by these pests. I have not found anything to kill them when once they have taken possession of the pot, and the only thing to do is to prepare some fresh pots and remove the seedlings. I find that I can keep the fly down pretty well in a small house by fumigating once a week with a small quantity of XL All. It is important not to overdo it, however. I sometimes divide a cake into two, and use it in two lamps.

Up to the present I have found crispum × crispum the most shy in germinating, but some of what we should call unlikely crosses come up freely; for instance, Uroskinneri × Harryanum, crispum × Coradinei, Rossii × Pescatorei, and Coradinei × Harryanum.

The first batch of any quantity to flower here was a lot of Pescatorei × cirrhosum, and this was last season, 3½ years from sowing the seed, but not one of them up to the present has shown the least sign of cirrhosum, being simply Pescatorei of a good type. There are about twenty others with spikes this year, and they look like Pescatorei at present. We have also opening O. crispum × sceptrum, a wonderfully fine lip, but the sepals and petals not so good."

Mr. Stevens must be congratulated on his success, and we thank him for communicating the details, and sending us such a graphic record of his work, which we hope will enable others to make more progress with this difficult genus. We have seen Mr. Thompson's seedlings twice, though when far less numerous than at present. On the first occasion it was a very few seedlings suspended in a small pot, and Mr. Stevens prophesied that they would go off, as they had done before. We remarked that they looked safe, and one at all events afterwards flowered, as O. × excellens. On the next occasion there were several little plants in various stages, some of them on the seed pans, requiring the aid of a lens to make them out. But persever-

ance has been rewarded, and we now hope that Mr. Stevens will devote just a little of his time and space to proving the origin of a few of the natural hybrids which at first were so perplexing.

We need not add more to what Mr. Stevens has said, for the picture and the details should enable anyone who can grow Odontoglossums well to achieve similar results, with the aid of the necessary patience and perseverance. The suspended pots contain the tiny seedlings in finger pots, plunged in moss. It is a most interesting little group, and the picture may some day be historical. We may add that the plant of O. × waltonense, bearing three flowers, may be seen immediately underneath the gap in the line of suspended pots, on the right of the picture. This handsome novelty is described and illustrated on page 49.

DENDROBIUM TERETIFOLIUM.

An inflorescence of the graceful little Dendrobium teretifolium is sent from the collection of S. G. Lutwyche, Esq., Eden Park, Beckenham. The plant was brought from Australia by a relative, Mrs. Lucy Lutwyche, growing on a block; and it is remarked that the leaves somewhat resemble those of Oncidium Jonesianum, and the roots are thick and fleshy, somewhat like those of a Phalænopsis. The inflorescence is pendulous, and the flowers white with a few purple markings on the lip. The sepals and petals are 1¼ inches long and gracefully attenuated, and the front lobe of the lip gracefully recurved, and very strongly undulate, the margins being almost doubly fluted. It is a graceful and very interesting little plant.

CATTLEYA PERCIVALIANA TRILABIATE.

A REMARKABLE flower of Cattleya Percivaliana, in which the lip is broken up into three, is sent by A. H. Hills, Esq., of San Francisco, and it is said that another flower on the plant developed two lips. It affords an excellent demonstration of the compound nature of the lip of an Orchid. The median segment occupies the position of, and is actually, the third petal, though it is infolded at the sides instead of being flat. The two lateral segments are more erect, and are really petaloid staminodes, occupying the position of the two lateral stamens of the outer whorl of a typical monocotyledon. It is the confluence of these three organs into one which forms the compound organ known as the lip in this group of plants. The sepals and petals are quite normal. It will be interesting to see if the peculiarity is repeated another season.

PAPHIOPEDILUM × SIAMENSE.

It has already been recorded that an experiment was in progress, in the collection of Reginald Young, Esq., Sefton Park, Liverpool, to demonstrate the origin of the above interesting plant, and now the result can be recorded. Two seedlings have flowered, and Mr. Young has kindly sent one of the plants, and the flower of the other, to show that they are identical with the wild plant. Mr. Young writes as follows :—

"I am sending you a plant in flower of my home-raised Paphiopedilum × siamense (P. Appletonianum ♀ × callosum ♂), together with a cut flower of a second seedling. This appears to me to be a satisfactory

FIG. 11. PAPHIOPEDILUM × SIAMENSE, with its two parents, P. CALLOSUM, fig. 12 (in the centre), and P. APPLETONIANUM, fig. 13 (on the right).

ending to an experimental operation, and justifies your remarks as to the probable origin of this plant. The progress of the experiment has been recorded from time to time, and it may be interesting to bring together the history of the question :—

"In 1895 you called attention to a published remark that we had 'no undoubted natural hybrid' in the genus, and stated your belief that the plant now under discussion had such an origin, for the known examples had been imported with P. callosum, from Siam, and now there was

evidence that a second species grew there, between which and callosum you considered siamense to be intermediate.—*O. R.*, iii, p. 20.

"A year later you figured the plant with its two supposed parents, and asked some of our hybridists to demonstrate experimentally what must now be obvious to everyone, by crossing the two species together.—*O. R.*, iv., pp. 17, 18, fig. 1-3.

"Shortly afterwards you announced that I had undertaken the task, fortunately having both species in flower.—*O. R.*, iv, p. 39.

"In 1897 progress was reported: on January 15th, 1896, two flowers of P. Appletonianum were fertilised with pollen of P. callosum; on December 16th following the pods were ripe and the seeds sown on a pot of P. × Harrisianum; on August 7th, 1897, my gardener, Mr. Poyntz, had pointed out quite a crop of seedlings, so that in due time the theory stood a very fair chance of being verified.—*O. R.*, v, p. 288.

"Lastly, two years later, you mentioned having seen these particular seedlings, which 'it was believed would prove the parentage of P. × siamense.'—*O. R.*, vii, p. 276.

"Here is the final result."

REGINALD YOUNG.

Mr. Young has certainly reproduced P. × siamense, for his seedlings agree thoroughly with the wild plant, and he deserves the thanks of botanists for his painstaking and successful efforts to solve one of the many perplexing problems which keep cropping up, and not among Orchids only, as I pointed out in my paper, 'Hybridisation viewed from the standpoint of systematic Botany,' read at the Hybridisation Conference. How many natural hybrids have been described as species it would be impossible to say, but fortunately facts are steadily accumulating. In the present case Mr. Young might have extended the history further, as follows:—

In 1890 P. × siamense was described by Rolfe as a new species, under the name of Cypripedium siamense, from a plant which had been introduced from the neighbourhood of Bangkok, in Siam, by M. J. Garden, of Paris.—*Gard. Chron.*, 1890, i, p. 161.

Still earlier, in 1888, Reichenbach described the same thing as Cypripedium callosum var. sublæve, from a plant which flowered out of a batch of P. callosum, in the collection of R. H. Measures, Esq., of Streatham.

It may be interesting to reproduce the original figures, and on looking at them it is not quite clear why siamense was ever considered as a variety of callosum. And an original remark by Reichenbach is rather inexplicable. He wrote:—"It [callosum var. sublæve] might be supposed to be a natural hybrid, but I do not believe it. . . . M. Regnier would have brought the other parent." This looks like a suspicion of the truth,

or a suggestion from some one. As the second parent was not described till 1893—even then its native country was unknown—it is not particularly remarkable that siamense should have been described as a species, especially as I had not then seen callosum sublæve, and never suspected its identity with siamense.

It is extremely satisfactory to have the whole question cleared up in this way, and Mr. Young must be congratulated on his prowess. There are many other cases where similar experiments might be undertaken with great advantage to systematic botany.

R. A. ROLFE.

CALENDAR OF OPERATIONS FOR FEBRUARY.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

DURING the month of February the temperatures given in the preceding Calendar should be maintained, allowing a slight rise with increasing sun heat. In the daytime, with sun heat, it matters little how much the rise of temperature may be, provided there is sufficient air and moisture to balance matters. At the same time avoid letting the hot-water pipes become too warm. Immediately on the appearance of continued sunshine means should be taken to prevent any excess of fire-heat, a most unnecessary evil at any time. In ventilating the houses great care must be exercised to avoid draughts, as bright sunshine is often accompanied by very cold winds. A sharp look-out must also be kept for insect pests, which may be kept in check by the application of the necessary remedies.

RE-POTTING ORCHIDS.—The busy time will soon be with us once again, and I take this opportunity of giving a few practical hints on this delicate operation. On the way this operation is performed depends the future health of a plant. Never disturb a large plant unless it absolutely requires it; and the same may be said of smaller ones, only a small plant may be done with less risk, because it is unnecessary to disturb the roots so much. When repotting is decided upon, select the proper time for this operation, which is, with few exceptions, just when new growth or roots are pushing from the base of the pseudobulbs. Use perfectly clean pots, pans, and crocks. Fibrous peat, leaf-soil, and sphagnum moss form the principal potting materials, and may be used according to calendarial directions. Always mix the compost well together before using, and work the material in carefully between the roots with the fingers of one hand, while the other holds the plant in position. Never cramp the roots together in one place, but distribute them regularly about the pot. Make the compost moderately firm, not too firm, nor yet too loose. It is necessary to fix some plants firmly in their receptacles to prevent them from toppling over, such as

Dendrobiums, &c. The stems should be secured to neat sticks, or to the wire suspenders if grown in pans or baskets. The success of many Orchids depends on their being firmly secured at the base in their receptacles; especially is this the case with newly imported plants. The length of time that the compost of a newly-potted plant will last in a sweet, healthy condition largely depends on the quality of the compost used, the method of watering adopted, and perfect drainage. Do not saturate the new compost immediately on repotting, but gently water the surface with the syringe and keep the same moistened, with its immediate surroundings, for some time. This will prevent shrivelling and loss of foliage, until the plant is re-established.

EAST INDIAN HOUSE.—Plants of the beautiful winter-blooming Angræcum sesquipedale will soon be pushing from their stems a number of young fleshy roots; should any plant require more root space it may receive attention at once. It may be that some have lost their lower leaves, leaving the stem bare; if so, these may be cut down and repotted. The ordinary pot is preferable to baskets, as the plants are more easily managed, and the roots less disturbed than when baskets are used. When repotting, pick out all the old decayed moss, and if any roots are clinging to the sides of the pot, carefully ease them by using a sharp, thin pocket knife. Place the plant in the centre of the pot, put some few large crocks at the bottom, then replace the roots, and in so doing, work in among them clean, picked sphagnum moss and crocks—about one-half of each—fill to within an inch of the rim, pressing down moderately firm, and finish off with good living sphagnum. Any of the large fleshy aërial roots that are long enough may be carefully brought down to the surface and secured by a peg. After repotting no water should be given for a few days, when they should have a thorough soaking. The moss on the surface will soon become dry again; this should be moistened over with a fine rose. Avoid keeping the plants in a saturated condition, or spot will quickly make its appearance: but when the plants require water give a good soaking, especially in the summer months, after which the quantity may be gradually reduced. The present is a suitable time to repot or top-dress any members of the Aërides family, most of which are inmates of this house. The above instructions will suffice for any member of this beautiful genus.

The beautiful spring flowering Platyclinis glumacea has made considerable progress with its young growths. The cool end of the Warm house is the most suitable place for it. Until the flowers commence to open, the plants should be stood as near the light as possible, and as the plants are now growing freely they should have more frequent waterings. When the flowering period is over any repotting that is necessary may be done, using equal parts of peat and chopped sphagnum, to which add a small quantity

of broken crocks. Keep the under sides of the leaves syringed during hot weather to prevent attacks of red spider, to which they are very subject. When growth is completed the plants should be rested in the Cattleya house, and less water applied to the roots.

Dendrobium chrysanthum is now starting into growth, and delights in hot moist treatment. It succeeds well if grown suspended near the glass in teak baskets. If any of the plants require rebasketing or top-dressing it should now be attended to, giving plenty of drainage, and a compost of two parts sphagnum to one of peat. Water sparingly until the young roots have a firm hold, or the new growths will probably damp off. When in full growth, however, liberal supplies may be given, until the growth is made and the flowers fade. The plant then will need a rest, and water should be given accordingly.

In the Cattleya House C. Warneri will be starting into growth, and should now be given a position at the warmest end of the house, close to the glass, for all the light available is needed at this season. Give little water until growth is well advanced, when the supplies may be increased. An occasional drying of the compost will prevent it becoming sour, and also the old roots from decaying. When sufficiently dry give a thorough watering, and as the growths mature gradually reduce the amount until only enough is required to prevent shrivelling.

Odontoglossum citrosmum is a plant well worthy of cultivation in every collection, being of easy culture, and when in bloom makes a very effective display with its long pendulous spikes. Water should only be applied at the present time to prevent shrivelling to excess, or the flower spikes, which appear out of the young growths, will not be forthcoming. When these make their appearance more water may be given, and the spikes protected from woodlice and slugs by a piece of wadding wrapped round them. An excellent trap for woodlice will be found by cutting a potato in half, hollowing out the centre, and placing the pieces on the compost. These should be examined night and morning.

Cymbidium Lowianum is now throwing out flower spikes, and will greatly benefit by the application of weak liquid manure occasionally.

IMPORTED ORCHIDS.—The success in establishing imported Orchids is largely due to the method of treatment given when received from the various importers. In the first place it is essential, before placing them in the houses, to thoroughly cleanse them from dirt and insects, afterwards laying them on a stage in a cool moist house until the potting can be done. They will keep in better condition if given this treatment, and kept shaded until the appearance of activity; the growth will be also stronger and cleaner when it begins.

ODONTOGLOSSUM × WALTONENSE.

A VERY beautiful hybrid Odontoglossum from the collection of W. Thompson, Esq., Walton Grange, Stone, was exhibited at the R. H. S. meeting on January 17th last, under the name of O. × waltonense, and gained a First-class Certificate. It was raised by Mr. Stevens from O. crispum crossed with the pollen of O. Kegeljani (polyxanthum), and the seed was sown on February 21st, 1900, so that the plant exhibited was under three years old. The inflorescence bore three flowers, the first of which expanded on December 21st last. The annexed photograph of a single flower was taken and kindly forwarded by

FIG. 14. ODONTOGLOSSUM × WALTONENSE.

Mr. G. I'Anson, of Bush Hill Park, but we have also photographs, taken by Mr. Stevens, of the entire plant. The shape of the flower, it will be seen, most resembles O. crispum, but the ground colour is a beautiful soft canary yellow, while the lip is broader, decidedly pandurate, and enlivened by a bright red-brown blotch in front of the crest. The sepals and petals of the flower shown are quite unspotted, but there was a single small spot on one of the others. Mr. Thompson must be congratulated on the production of such a sterling novelty.

SOCIETIES.

ROYAL HORTICULTURAL.

THE first meeting of the year was held at the Drill Hall, Buckingham Gate, Westminster, on January 13th, when there was a very fine display of Orchids, though on account of the very cold weather it consisted largely of cut flowers.

Captain Holford, Westonbirt, Tetbury (gr. Mr. Alexander), staged a very beautiful group, mostly cut flowers, effectively arranged with maidenhair ferns, and received a Silver Banksian Medal. It included two beautiful little clusters of the handsome Lælio-cattleya × Charlesworthii, the flowers being of a bronzy orange shade, L.-c. × Sunray, Cymbidium × Winnianum, Lælia anceps Schrœderiana, Lycaste Skinneri atrosanguinea, and about fifty fine Cypripedes, with a prettily spotted form of Odontoglossum crispum bearing two spikes of flowers.

W. Thompson, Esq., Walton Grange, Stone (gr. Mr. Stevens), received a First-class Certificate for Odontoglossum × waltonense, a very beautiful novelty, which is described and figured at page 49.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Gilbert), sent two forms of the beautiful Lælio-cattleya × Helena, Cypripedium × Hera punctatissimum, and a beautiful hybrid of unrecorded parentage called C. × Memoria Jerninghamiæ, having a white dorsal sepal, with emerald green base, a broad purple median band, and some purple marking on either side. An Award of Merit was given to Cypripedium × Samuel Gratrix var. Minnie (× Leeanum superbum × nitens superbum), a very handsome hybrid (see p. 63).

J. Colman, Esq., Gatton Park, Reigate (gr. Mr. Bound), staged a pretty group arranged with Asparagus Sprengeri, to which a Silver Banksian Medal was given. It contained fine spikes of Cymbidium × Winnianum, C. Tracyanum, Zygopetalum Mackayi, together with good examples of Calanthe × Veitchii, C. × Bryan, C. × William Murray, Lælia anceps, and Lælio-cattleya × Vacuna.

M. Otto Beyrodt, Marienfelde, Berlin, sent a selection of six beautiful forms of Cattleya Trianæ, ranging from the typical form to pure white, Odontoglossum × Adrianæ, Cypripedium insigne, and a supposed natural hybrid said to have been imported with C. callosum.

J. T. Bennett-Poë, Esq., Holmewood, Cheshunt (gr. Mr. Downes), showed the fine New Guinea Dendrobium spectabile.

J. Bradshaw, Esq., The Grange, Southgate (gr. Mr. Whitelegge), showed Lycaste Skinneri Enchantress.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent Lælia anceps Theodora, a pretty blush pink form.

J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), sent **Cypripedium × Leander reticulatum.**

H. E. Gordon, Esq., Aikenhead, Glasgow (gr. Mr. Boucher), showed a pretty hybrid Cypripedium derived from C. Druryii and C. Boxallii superbum, and another from C. × Harrisianum and C. insigne punctato-violaceum.

Major Joicey, Sunningdale Park (gr. Mr. Thorne), sent the handsome Dendrobium Johnsoniæ, D. spectabile, and a hybrid Cypripedium.

J. Wilson Potter, Esq., Elmwood, Croydon (gr. Mr. Young), showed a fine and very richly coloured hybrid from C. × Harrisianum superbum and C. Charlesworthii, called **C. × J. Wilson Potter.**

Baron Sir H. Schröder, The Dell, Staines (gr. Mr. Ballantine), sent the **fine Cypripedium × Leeanum Clinkaberryanum.**

G. Singer, Esq., Coundon Court, Coventry (gr. Mr. Collier), sent good flowers of Cypripedium × Olivia, C. × aureum Surprise, and C. × Madame Jules Hye.

A. Wright, Esq., Bucklebury, Reading, sent Dendrobium × Cybele.

Messrs. James Veitch & Sons, Chelsea, sent a fine group, consisting for the most part of showy hybrid Cypripedes, two beautiful novelties being C. × Dryope (× Harrisianum × Charlesworthii), almost uniformly rose-purple throughout, except for a white margin to the dorsal sepal, and C. × Cupid (× cardinale ♀ × Lindleyanum). The group also contained the fine Angræcum × Veitchii, Cattleya × Elvina, Calanthe × Veitchii, Zygopetalum × leucochilum, and some good hybrid Dendrobiums. **A Silver Banksian Medal was awarded.**

Messrs. F. Sander & Sons, St. Albans, staged a small group of choice hybrids, the more noteworthy being Zygopetalum × Wiganianum, Cypripedium × Miss Louisa Fowler, C. × Louis Sander (× Calypso Oakwood var. × nitens), a fine thing, having the dorsal sepal white, suffused with rose-purple, with a darker median band, and the petals and lip bronzy yellow; C. × The Durbar (× Morganiæ × hirsutissimum), having a very dark dorsal sepal margined with white, the petals spotted with purple on a yellowish ground, and the lip bronzy yellow; C. × Hindeanum (Godefroyæ × insigne Harefield Hall var.), an extremely fine hybrid of intermediate character, which received a First-class Certificate; and C. × Empress Alexandra (Godefroyæ × nitens), having the flower very prettily marked with purple, to which an Award of Merit was given.

Messrs. Charlesworth & Co., Heaton, Bradford, sent the fine Lycaste × Balliæ with thirteen flowers, C. × Lathamianum giganteum, C. × Leeanum magnificum, C. × Lawrebel, and C. × aureum Hyeanum.

Messrs. Hugh Low & Co., Bush Hill Park, received an Award of

Merit for Odontoglossum × Lucasianum var. Walkeri, a supposed natural hybrid from O. Hallii, having dark brown sepals and petals tipped and margined with yellow, and the yellowish white lip spotted with red-brown.

M. A. A. Peeters, Brussels, sent five finely grown and very distinct varieties of Cypripedium × aureum, called Cyrus, Hyeanum, Œdipe, Surprise, and virginale.

Mr. H. A. Tracy, Twickenham, showed a pretty yellowish form of Cypripedium insigne spotted and tinged with brown.

AT the meeting held on January 27th, the display of Orchids was much smaller, but included two fine novelties which gained First-class Certificates, namely Odontoglossum × Bradshawiæ and Zygopetalum × Sanderi, also a few other remarkable things.

J. Bradshaw, Esq., Southgate (gr. Mr. Whitelegge), sent four good forms of Lycaste Skinneri, and Odontoglossum × Bradshawiæ (Harryanum × Andersonianum), the latter gaining a First-class Certificate. It is described on page 58.

J. Wilson Potter, Esq., Croydon (gr. Mr. Young), received an Award of Merit for Cypripedium × J. Wilson Potter (× Harrisianum × Charlesworthii), a finely shaped rose-purple flower, having some darker veins on the dorsal sepal, and a white margin.

The Right Hon. Lord Rothschild, Tring Park (gr. Mr. Hill), sent fine inflorescences of Phalænopsis Stuartiana and P. Schilleriana, the latter being especially remarkable. It had nine side branches, two of which were again branched, one of them having four secondary branches. The inflorescence bore an aggregate of eighty-eight flowers, and deservedly gained a Cultural Commendation.

J. T. Bennett-Poë, Esq., Cheshunt (gr. Mr. Downes), sent a fine example of Odontoglossum Edwardi, the inflorescence bearing fourteen side branches; also the rare Ipsea speciosa, bearing three spikes of large yellow flowers, the latter receiving a Cultural Commendation.

J. F. Alcock, Esq., Northchurch, sent Cypripedium insigne Bohnhofianum, remarkable for having the brown colour of the dorsal sepal suffused instead of aggregated into spots.

J. Colman, Esq., Reigate (gr. Mr. Bound), showed three plants of Dendrobium × Ellisii (Wiganianum), one called Gatton Park variety being prettily suffused with rose pink on the segments; also a plant of Lælia × Eyermaniana, a supposed natural hybrid between L. albida and L. grandiflora.

N. C. Cookson, Esq., Wylam-on-Tyne (gr. Mr. Chapman), sent a well-blotched form of Odontoglossum × loochristiense called Oakwood variety.

F. Wellesley, Esq., Woking (gr. Mr. Gilbert), sent a richly-coloured form of Cattleya Percivaliana, and three good Cypripedes.

Messrs. Sander & Sons, St. Albans, staged a fine group, which received a Silver Banksian Medal. It contained some good examples of Phaius × Marthæ and P. × Norman, Lycaste Skinneri, Odontoglossum apterum candidulum, Epidendrum × Endresio-Wallisii, Cattleya Trianæ, several good Cypripedes, Lælio-cattleya × Pallas, a fine dark L.-c. × bletchleyensis, and L.-c. × novissima (C. Gaskelliana × L. anceps), a fine hybrid most like the latter in habit, the long spike bearing four flowers, with blush sepals and petals, and the lip purple in front, and nearly entire, but retaining the anceps-like markings on the disc. A First-class Certificate was given to *Zygopetalum* × Sanderi (Perrenoudi × Mackayi), a very fine dark hybrid with fragrant flowers. The sepals and petals were very heavily marked with dark purple-brown, and the greater part of the velvety lip purple, with darker nerves.

Messrs. Hugh Low & Co., Bush Hill Park, staged a very pretty little group, containing Cattleya Trianæ Atalanta, C. T. Cleopatra, and C. T. Lowiæ, the latter a large blush white form with orange disc to the lip; also a very richly coloured C. Percivaliana, two examples of the pretty Cynorchis Lowii, one of them bearing eight spikes, some good Lælia anceps Sanderiana, Cypripedium niveum, C. × Crossianum aurantiacum, a richly-coloured form, and a very richly-coloured hybrid between C. Charlesworthii and C. Lawrenceanum, having the flower almost entirely suffused with dark ruby red.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

A MEETING of this Society was held at the Coal Exchange, Manchester, on December 11th last, when there was a fine display of Orchids.

O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), staged a splendid group of Cypripedes, which gained a Gold Medal. A Cultural Certificate was given to a fine example of Cypripedium × Arthurianum, and Awards of Merit to C. × Euryades incomparabilis, and C. × E. Wrigley's var.

W. Thompson, Esq., Stone (gr. Mr. Stevens), staged a fine group, which gained a Silver Medal. Awards of Merit were given to Odontoglossum × loochristiense var. Annie, and Cypripedium × Charlesianum Walton Grange var.

A. Warburton, Esq., Vine House, Haslingden (gr. Mr. Bailey), received a First-class Certificate and a Silver Medal for the very beautiful Odontoglossum crispum Le Merveil.

W. Duckworth, Esq., Flixton (gr. Mr. Tindall), received a Cultural Certificate for Cypripedium insigne Sanderæ, and Harefield Hall variety.

Messrs. Charlesworth & Co., Bradford, received a Bronze Medal for a

small group, and an Award of Merit for Cypripedium × Rosita (callosum × Charlesworthii).

Messrs. John Cowan & Co., Gateacre, sent a small group which received a Vote of Thanks. Cypripedium × Acteus magnificum gained an Award of Merit.

THE first meeting of the year was held at the Coal Exchange, Manchester, on January 8th, and brought together a very fine display of Orchids.

O. O. Wrigley, Esq., Bridge Hall, Bury, received a Silver Medal for a choice group of Cypripedes, together with Cattleya quadricolor (chocoensis) albens. Awards of Merit were given to Cypripedium × Melia, C. × Tityus superbum, and C. × Pollettianum superbum.

S. Gratrix, Esq., Whalley Range (gr. Mr. Cypher), received a First-class Certificate for Cattleya Percivaliana West Point var., and an Award of Merit for Cypripedium × Great Rex (C. insigne Sanderæ × villosum).

G. W. Law-Schofield, Esq., Rawtenstall (gr. Mr. Shill), received an Award of Merit for a good group of Cypripedes. First-class Certificates were given to two new seedlings of unknown parentage.

Mr. J. Cypher, Cheltenham, received a Silver Medal for a fine group, including some good forms of Lælia anceps, six fine pans of Sophronitis grandiflora, Angræcum sesquipedale, and some fine forms of Cypripedium insigne, C. × Leeanum, &c.

M. A. A. Peeters, Brussels, received a Bronze Medal for a small group of choice things. A First-class Certificate was given to Cypripedium × aureum Surprise, and Awards of Merit to C. × Cardosoanum and C. × Madame Alfred Bleu.

Messrs. Hugh Low & Co., Enfield, received a Bronze Medal for a good miscellaneous group.

Messrs. A. J. Keeling & Sons, Bradford, also received a Bronze Medal for a good group of Cypripedes.

Messrs. John Cowan & Co., Gateacre, received an Award of Merit for Cypripedium × Kubele, a pretty hybrid raised by R. Young, Esq., from C. × œnanthum and C. × Youngianum.

AT the meeting held on January 22nd very few Orchids were exhibited.

S. Gratrix, Esq., Whalley Range (gr. Mr. Cypher), received a First-class Certificate for the fine Cypripedium × Hindeanum (Godefroyæ × insigne Harefield Hall var.), and an Award of Merit for C. × Samuel Gratrix (× Leeanum × nitens superbum).

G. W. Law-Schofield, Esq., Rawtenstall (gr. Mr. Shill), received a First-class Certificate for Cypripedium × aureum var. Surprise, and an Award of Merit for C. × Angus, a hybrid of unknown parentage.

Mrs. Ardern, Stockport, exhibited good examples of Odontoglossum × crispo-Harryanum, Cypripedium × microchilum, and C. × Thompsonianum, the latter gaining a First-class Certificate. A Vote of Thanks was accorded to the group.

Messrs. John Cowan & Co., Gateacre, received a Bronze Medal for a fine group of Lycastes, mostly varieties of L. Skinneri.

ORCHIDS IN SEASON.

THE flowering period of the beautiful Cattleya Trianæ has again arrived, and a very pretty form has been sent from the collection of Mrs. Grogan, Slaney Park, Baltinglass, Co. Wicklow (gr. Mr. Oliver). The shape is very good, and the ground colour of the sepals and petals lilac-blush, with a few purple lines extending from the middle to the apex of the latter, while the front lobe of the lip is rich purple-crimson in front of the yellow disc. A good form of Lycaste Skinneri has the sides of the petals near the base, also the centre of the front lobe and apex of the side lobes, prettily stained with bright rose. Paphiopedilum × Lathamianum is represented by a very good form in which the sides of the dorsal sepal are prettily stained with purple on either side of the deep purple band. A very good brightly coloured flower of Cymbidium Tracyanum is also enclosed. All the flowers show evidence of good culture.

A very distinct white form of Odontoglossum crispum is sent from the collection of R. de Q. Quincey, Esq., Oakwood, Chislehurst, by Mr. Lee. The segments are of good breadth, but more elongated than usual, measuring over 4½ inches from the tip of the dorsal to that of the lateral sepal. Three pretty forms of Lælia anceps are also sent, namely, L. a. venusta, having nearly white sepals and petals and a rosy purple lip; L. a oculata, larger, with blush sepals and petals, and the front lobe of the lip deep purple at the apex, but with a large white area at the base: and a large brightly coloured form of the type.

A fine light coloured form of Paphiopedilum × Ashburtonæ, or a closely allied hybrid, is sent from the collection of Mrs. Colston, Roundway Park, Devizes. It was purchased at a sale with a lot of P. × Ashburtonæ, but has rather more of the character of P. insigne than usual, and the leaves are said to be green, so that its identity is a little uncertain. The dorsal sepal bears lines of small dusky spots as in the hybrid named.

A good form of Odontoglossum Hunnewellianum is sent from the collection of R. I. Measures, Esq., Cambridge Lodge, Camberwell, by Mr. Smith, also a Paphiopedilum of uncertain parentage. There is much resemblance to P. × Arthurianum in the shape and arrangement of the markings on the dorsal sepal, and it is thought that this may have been one

parent, but the other is altogether doubtful. The petals are spotted with purple-brown on their basal halves, and the hybrid should be compared with P. × argutus, a hybrid between P. × Arthurianum and P. × Argus.

Three good forms of Paphiopedilum insigne are sent from the collection of F. Hardy, Esq., Tyntesfield, Ashton-on-Mersey, by Mr. Stafford, namely, P. i. albens, P. i. aureum, and P. i. giganteum, the latter being a rather large spotted form. There is also a pretty hybrid from P. × Leeanum × Chamberlainianum, in which the characters of the two parents are well blended. It is a form of P. × Maria.

A fine inflorescence of Odontoglossum Uroskinneri album is sent from the collection of the late R. Tunstill, Esq., Burnley, by Mr. Balmforth. The plant was purchased in flower from Messrs. F. Sander & Co., in August, 1901, and again showed a spike in the following May, which was pinched off in order to get a strong spike from the next bulb, and this has now appeared. The history of the plant was given at page 334 of our first volume, and the doubtful point about its origin has, we believe, never been cleared up. Six good forms of Paphiopedilum × Leeanum are also sent, showing a wide range of variation in the amount of spotting on the dorsal sepal; also the handsomely blotched P. × Schlesingerianum Mons. de Curte.

Flowers of the beautiful Lælio-cattleya × luminosa, for which we believe that L.-c. × Truffautiana is an earlier published name, are sent from the collection of Sir James Miller, Manderston, Duns, N.B., by Mr. Hamilton. They show an unmistakable combination of the characters of Cattleya Dowiana aurea and Lælia tenebrosa, and the habit is said to be that of the former, with longer bulbs. The lip is rich purple, and the sepals and petals of a coppery yellow shade, which in one flower is darker than the other.

Flowers of five different forms of Odontoglossum × Andersonianum are sent from the collection of the Right Hon. J. Chamberlain, M.P., Highbury, Birmingham, by Mr. Mackay, all of them having the ground colour light yellow, but differing greatly in the number and arrangement of the spots. A flower is also sent of the pretty little O. blandum, which is now in flower in the collection.

Flowers of some interesting hybrid Paphiopedilums are sent from the collection of Reginald Young, Esq., Sefton Park, Liverpool. Two forms of P, × Omphale differ considerably, though out of the same seed pod P. × Xanthus is sent, with P. × chloroneuron, one of its parents, and two pretty forms of P. × Hera. Flowers of the brilliant little Sophrolælia × Psyche are also sent, from a plant which is carrying two inflorescences.

BRASSOCATTLEYA × LEEMANNIÆ.

WE are now able to give an illustration of the beautiful Brassocattleya × Leemanniæ, from a photograph kindly sent by the raiser, M. Ch. Maron, Brunoy, France. It was derived from Cattleya Dowiana aurea ♀ and Brassavola Digbyana ♂, and was exhibited by M. Maron at the R.H.S. meeting on April 22nd last, when the plant had obviously not reached its full development. Its general character is well shown in the annexed photograph. The segments are of a pretty shade of pale primrose, tinged with rose on the back of the sepals and margins of the petals, while the lip is greenish yellow, tinged with lilac, with some

FIG. 15. BRASSOCATTLEYA × LEEMANNIÆ.

radiating purple veins on the disc. The lip shows the unmistakable fringed character of all the hybrids of B. Digbyana, but the general shape is rather nearer that of the Cattleya parent, whose characteristic markings are well represented on the disc of the lip. It is certainly very beautiful, and M. Maron writes that he considers it the finest hybrid that has yet been raised. It is dedicated to Mrs. J. Leemann, of Heaton Mersey, near Manchester. We hope to see it again when the plant has become stronger, and the flowers have attained their maximum development.

THE HYBRIDIST.

ODONTOGLOSSUM × BRADSHAWIÆ.—This is a very beautiful hybrid between Odontoglossum Harryanum and O. × Andersonianum, which was exhibited by J. Bradshaw, Esq,, The Grange, Southgate, at a meeting of the R.H.S. held on January 27th last, and gained a First-class Certificate. It was raised on the Continent and flowered some time ago, when it was purchased by Mr. Bradshaw. Since then it has made a very strong bulb, which has now produced a noble inflorescence. A flower kindly sent by Mr. Bradshaw measures 4½ inches from the tip of the dorsal to the tip of the lateral sepals, which organs measure from 8 to 9 lines broad. The petals are rather shorter and more acuminate than the sepals, but otherwise very similar, and the lip is an inch broad, by 1½ inches long, with a very short abruptly acuminate apex. The colour is bright yellow, tinged with rose on the back of the sepals, and very slightly so also at the front. The markings are confined to the lower two-thirds of the sepals and petals, and take the form of numerous red-brown blotches, which are more or less confluent in groups, and arranged somewhat in a zone on the petals. On the lower half of the lip the spots are much smaller and very numerous. In general shape the flower most resembles O. Harryanum, and there is a certain resemblance to O. × spectabile, but the arrangement of the markings, and a slight twist at the apex of the lateral sepals shows the influence of O. gloriosum. It is a very beautiful hybrid, and the segments are broader than might have been expected.

PAPHIOPEDILUM × PERSEPHONE.—This is a distinct and pretty hybrid sent from the collection of Reginald Young, Esq., Sefton Park, Liverpool. It was purchased as a seedling with the record "Lathamianum × exul," and appears to be correct, for the petals, lip, and staminode show an unmistakable resemblance to the latter species, while the dorsal sepal is enlarged, green at the base, with some dark purple-brown spots in the centre, and the upper part white. There are also a few dark purple-brown spots at the base of the petals.

LÆLIO-CATTLEYA × MARICA.—Mr. Young also sends a flower of Lælio-cattleya × Marica (Lælia cinnabarina × Cattleya amethystoglossa) as an example of another hybrid in which the cinnabar colour is obliterated. It has retained largely the characteristic cinnabarina shape, but the narrow sepals and petals are light purple in colour, and the lower half of the lip nearly white, while the front lobe and tips of the side lobes are very dark purple.

PAPHIOPEDILUM × UNA.—A charming little hybrid, derived from P. villosum × Godefroyæ leucochilum, in the collection of W. M. Appleton, Esq., of Weston-super-Mare. The flower has much of the general shape of the latter, and the ground colour is cream-white, with a very pretty purple reticulation on the dorsal sepal, and very numerous minute purple dots on the lip and outer halves of the petals. The villosum character is perhaps most obvious in the more hairy ovary. P. villosum was also crossed with P. niveum, and Mr. Appleton remarks that there is just a doubt as to which batch of seedlings this came from, but it bears most resemblance to the one first-named. It promises to develop into a very beautiful thing.

PAPHIOPEDILUM × DAPHNE.—Another very pretty hybrid raised by Mr. Appleton, from P. × Charlesworthii × exul. The flower most resembles the latter in the details of the lip and petals, but the influence of P. Charlesworthii is seen in the dorsal sepal and staminode. It is a promising little hybrid, much liked by Mr. Appleton, and we shall hope to see it again.

PAPHIOPEDILUM × MEROPE.—A third hybrid is sent by Mr. Appleton, which was derived from P. Chamberlainianum × hirsutissimum. It has retained much of the general habit of the former, but the flower is enlarged, and the petals considerably elongated, and showing much of the characteristic markings of P. hirsutissimum. The lip and dorsal sepal also show the same influence in their more elongated shape. The latter organ is largely suffused with dusky brown. It is a distinct and attractive hybrid and should be taken care of.

"SLUGS, SNAILS, AND WOODLICE."

"AN ANXIOUS AMATEUR" is evidently much troubled with these marauders, and at page 5 waxes eloquent in their denunciation. Mangold wurzel "traps" can be used with great effect against Woodlice. A Mangold Wurzel should be cut in half, the centre scooped out somewhat, and the pieces laid about in likely places in the house. If examined carefully every morning the ranks of the marauders may soon be thinned. Beetroots, carrots, and potatoes are also very good substitutes; and also prove attractive to slugs and snails. Fumigating is not likely to be effective in the case of pests which can easily hide away beyond reach of the fumes. Bran and lettuce leaves will both serve to attract slugs, and if regularly examined these pests should be kept well in check. They have a way of wandering in from outside, so that

anything which is likely to harbour them is best cleared away. Some localities seem specially favourable to them, but with perseverance they can generally be prevented from doing much mischief. There can be no doubt about the mischief these pests are capable of when numerous.

ORCHIDS IN LEAF MOULD.

THE discussion respecting the use of leaf-mould is very interesting. I have been using this material for the last eighteen months, in various ways and mixtures, and I think I have got about the right composition, but should like to try it a little longer before giving a decided opinion. I think that all Orchids are better for a certain amount of it, and Cypripedes I find, contrary to the experience of others, do very well in it. "Amateur" (page 8) is about right as to the use of the sprayer, and careful attention to watering, but I do not agree with him that last season was a specially favourable one for Orchids.

W. M. APPLETON.

Weston-super-Mare.

An "Amateur" (page 8) wishes to discover whether the conditions of the past year have not been unusually favourable for Orchid growing. I think that most Orchid growers will agree that it was rather the reverse, and Mr. J. Mackay at page 29 speaks of the "sunless summer." Some other cause probably produced the good results he speaks of in his interesting note.

Liverpool. REGINALD YOUNG.

Mr. R. Barker, of Sheffield, also writes that he has seen a collection of Odontoglossums which had got into a bad state, but after being potted in a compost of leaf-mould they recovered in a remarkable way, and have now produced strong healthy growths and good flower spikes. He adds:—"I intend potting my few Odontos in a compost of fern rhizomes, with small pieces of charcoal, oak leaves freed from all rubbish, and some sand intermixed." He also thinks that in towns where the atmosphere is dull and murky an additional amount of care in watering is required.

Several other growers have referred to the results of their experiments in favourable terms, and we believe that with proper care the new compost will prove a valuable adjunct to Orchid culture. We shall be glad to receive details of further experiments.

ORCHID HYBRIDISATION.

WE have been asked to give some particulars respecting the fascinating work of hybridising Orchids, and as most growers are now interested in the question, and have already made more or less successful experiments in this direction, we have much pleasure in complying. And we may add that in the highly critical operation of germinating and raising the seedlings we have secured the co-operation of one of our most successful hybridists.

We cannot wonder that amateurs are drawn to this particular side of Orchid culture, even if at the outset they do not expect to produce much in the way of novelty, for every stage of the subject is interesting—the pollination of the flower, the development of the capsule, the sowing and germinating of the seed, and the gradual progress of the young seedlings from the minutest atom up to the time when the scape pushes forth and the flower bud at length unfolds.

For the beginner no elaborate preparations are necessary. Such materials as are ready to hand in his collection will serve as a commencement, and it would be well to begin with some easy subject, leaving the more ambitious crosses until such time as he has gained a little experience. But it would be well to start with some definite object in view, and crosses which are likely to yield hybrids of inferior quality should be avoided. Good forms of the parents should be selected, and the seed parent should be strong, and in such a condition that it will not require repotting till the capsule is mature.

The first stage of the operation consists in removing the pollinia from the seed parent. These are found contained in a little case at the top of the column, and may be easily moved with a pencil, piece of stick, or in some cases with the fingers, by lifting the case upwards and removing the waxy substance, which generally adheres entire if properly done. In the case of a Cypripede there are two anthers (not enclosed in a case) one opposite to each lateral opening at the base of the lip, and these should be carefully broken or cut off entire. Now take the pollen in the same way from the other flower, and apply it to the stigma, when it will adhere. The stigma is the somewhat hollowed out organ with a sticky surface, just underneath the anther on the front of the column, or in the case of the Cypripede the shield-shaped body, pointing face downwards, inside the lip (not the upper one, which is the staminode). This operation is called pollination.

Any one may familiarise himself with the structural details by pulling a few flowers to pieces, and should any difficulty occur some friend may generally be found who has had the necessary experience.

The details of the cross, with the date, should now be entered in a note book, with a number, which latter should also be written on a small ticket and tied on to the flower. Crosses should be numbered consecutively, and carefully entered, space being left for future use, such as the details of sowing the seed, &c.

The effect of pollination will soon be seen, in the flower falling prematurely, and the column beginning to swell, and the chief thing now to be attended to is to keep the plant healthy and avoid checks and over-stimulation.

(To be continued.)

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, during February, on the 10th and 24th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The Annual General Meeting of the Society will be held on the former date, at 3 p.m.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on February 5th and 19th. The Committee meets at 11.30 a.m., and the exhibits are open to inspection from 12.30 to 3 p.m.

Three years ago our esteemed contemporary, *Indian Gardening*, added a Planting section, and the new development has assumed such importance that the journal will in future be known as *Indian Planting and Gardening*. The scope and policy of the journal will remain as before, though the Tea and Planting section now takes precedence. The work now commences its twelfth volume, in a slightly enlarged form, and in the issue just to hand we find, among other matters, articles on Phalænopsis Schilleriana, which thrives well in India, and the Vanilla, which is attracting attention there as an economic plant.

A curiously abnormal inflorescence of Paphiopedilum insigne is sent from the collection of E. P. Collett, Esq., of Hale, Cheshire, of which a photograph is sent. There are two flowers, the upper one of which is normal, but the lower one is quite abnormal, and its bract has developed into a leaf about twice as long as the (normal) petals. The dorsal sepal is small, and twisted round to one side, and opposite to the lip there is a petal-like body which seems to be united to a crumpled portion of one of the other segments, this part being obscured by the lip. The deformity is not likely to be permanent.

A pretty "double" flower of Odontoglossum crispum is sent from the collection of A. Warburton, Esq., Vine House, Haslingden, by Mr. Bailey, who states that it grew on a spike with eleven other flowers which were all normal, the plant being strong and in good health. There are two flowers completely fused together in the common pedicel, but the two columns and lips are distinct, and there are eight other segments, four of which are exterior to the others, so that the petals are also duplicated, but two sepals are wanting to complete the series.

Paphiopedilum × Sophie is a very pretty little hybrid derived from P. niveum × Gowerianum, of which a flower has been sent from the collection of Frank A. Rehder, Esq., of Gipsy Hill. The ground colour of the flower is white, prettily suffused with blush, and the dorsal sepal lined with purple, while the petals and lip are minutely spotted with the same colour. It was first exhibited at the R.H.S. Meeting on August 5th last.

One of the richest coloured forms of Paphiopedilum Charlesworthii is sent from the collection of W. M. Appleton, Esq., of Weston-super-Mare, together with a paler form, of which Mr. Appleton remarks that the dorsal sepal always keeps its distinctly concave shape. A large and richly coloured form of P. × bingleyense is also sent, together with a fine P. × Phoebe, and a promising byhrid from P. × villosum × Charlesworthii.

Another handsome hybrid is sent from the collection of F. Wellesley, Esq., Westfield, Woking, which received on Award of Merit from the R.H.S. on January 13th. The flower is very large, the dorsal sepal white, regularly spotted with purple, and tinged with green at the base, the petals and lined with brown, and lip marbled with the same colour.

A brilliant little hybrid from Cattleya Schilleriana × Lælia cinnabarina is sent from the collection of Joseph Broome, Esq., Sunny Hill, Llandudno, which is likely to develop into a fine thing when the plant becomes strong.

LYCASTE × JANETÆ.

A PHOTOGRAPH of the yellow flowered form of Lycaste × Janetæ, bearing 29 flowers, is sent by Mrs. Ross, of Florence, to show what a floriferous little plant it is. It may be remembered that it is a hybrid between L. Skinneri ♀ and L. Rossiana ♂, and that a note on the wide range of variation between the different seedlings from the same seed pod was given at page 95 of our ninth volume. It is fortunate that the exact history is known, for it would hardly have been suspected that both the yellow and rose coloured forms originated from the same cross.

ORCHID PORTRAITS.

CATTLEYA MOSSIÆ ARNOLDIANA LOW'S VARIETY.—*Journ. Hort.*, 1903, i, p. 91, with fig.

C. M. SIR THOMAS LIPTON.—*Rev. Hort. Belge*, 1903, p. 3, with plate.

CYPRIPEDIUM × GALATEA MAJUS.—*Journ. Hort.*, 1903, p. 47, with fig.

CYPRIPEDIUM × HINDEANUM.—*Gard. Chron.*, 1903, i, p. 53, fig. 26.

DISA GRANDIFLORA (specimen plant).—*Gard. Chron.*, 1903, i, p. 37, fig. 20.

LÆLIA DIGBYANA.—*Garden*, 1903, i, p. 45, with fig.

LÆLIO-CATTLEYA × YELLOW PRINCE.—*Rev. Hort.*, 1903, p. 12, with plate.

LEPTOLÆLIA × VEITCHII.—*Gard. Chron.*, 1903, i, p. 50, fig. 23, 24.

ODONTOGLOSSUM CRISPUM (proliferous).—*Gard. Chron.*, 1903, i, p. 13, fig. 6.

ODONTOGLOSSUM × WALTONENSE.—*Gard. Chron.*, 1903, i, p. 51, fig. 25; *Journ. Hort.*, 1903, i, pp. 70, 71, with fig.; *Gard. Mag.*, 1903, p. 73, with fig.; *Garden*, 1903, i. p. 78, with fig.

ONCIDIUM GARDNERI.—*Gard. Chron.*, 1903, i, p. 19, fig. 9.

SACCOLABIUM CŒLESTE.—*Journ. Hort.*, 1903, i, p. 25, with fig.

SOPHROCATTLEYA × EXIMIA.—*Journ. Hort.*, 1903, i, 3, with fig.

STANHOPEA OCULATA.—*Amer. Gard.*, 1903, p. 39, fig. 9.

CORRESPONDENCE.

(Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.)

J.W. The named varieties of Paphiopedilum × Leeanum are getting very numerous, but we do not know by what characters some of them are distinguished. Of course growing them side by side under the same conditions would form an excellent test of their distinctness.

J.R. There are many fine things which have not yet been adequately figured, and an occasional photograph of such things would be acceptable.

J.M. Odontoglossum × hebraicum, Rchb. f., is only a form of the earlier O. × Andersonianum. In the original O. × Andersonianum the ground colour was white; in O. × hebraicum light yellow, but some forms are quite intermediate between the two. For an account of this most polymorphic hybrid see vol. i., pp. 170-174.

H.G.A. Gomeza Barkeri.

G.F.M. Phragmipedilum Lindleyanum, so probably not a "stray seedling."

Photographs received, with thanks. Mrs. R., J.M., W.S., G.F.A., C. & Co.

A few days unavoidable delay has occurred in the issue of the present number.

We have received the Illustrated Catalogue of Lath Roller Blinds, and other shading materials, from Messrs. Walters & Co., of Great Tower Street. These blinds, it is hardly necessary to add, have been found invaluable for shading Orchid houses and similar structures. Orchid baskets and rafts are also included in the firm's manufactures.

It will be seen from our advertisement pages that Mr. Whiffen, late gardener to J. Bradshaw, Esq., is seeking an engagement, and his experience should be useful to those in need of some one to take charge of their collections.

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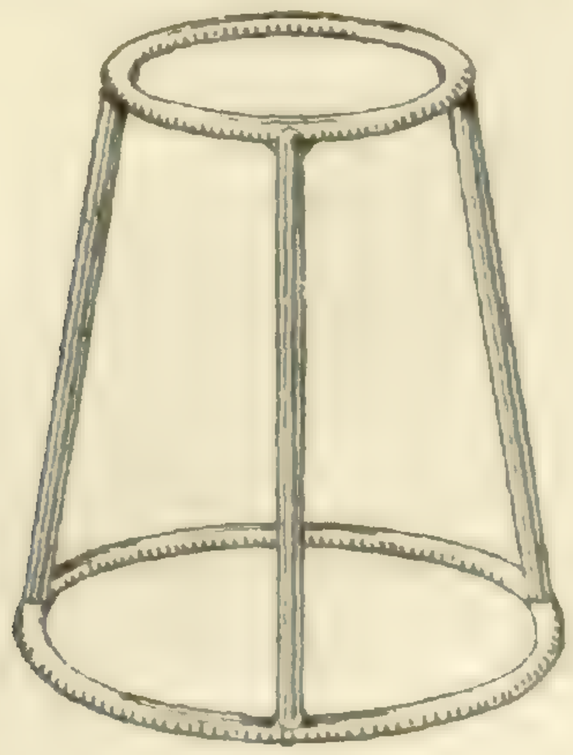

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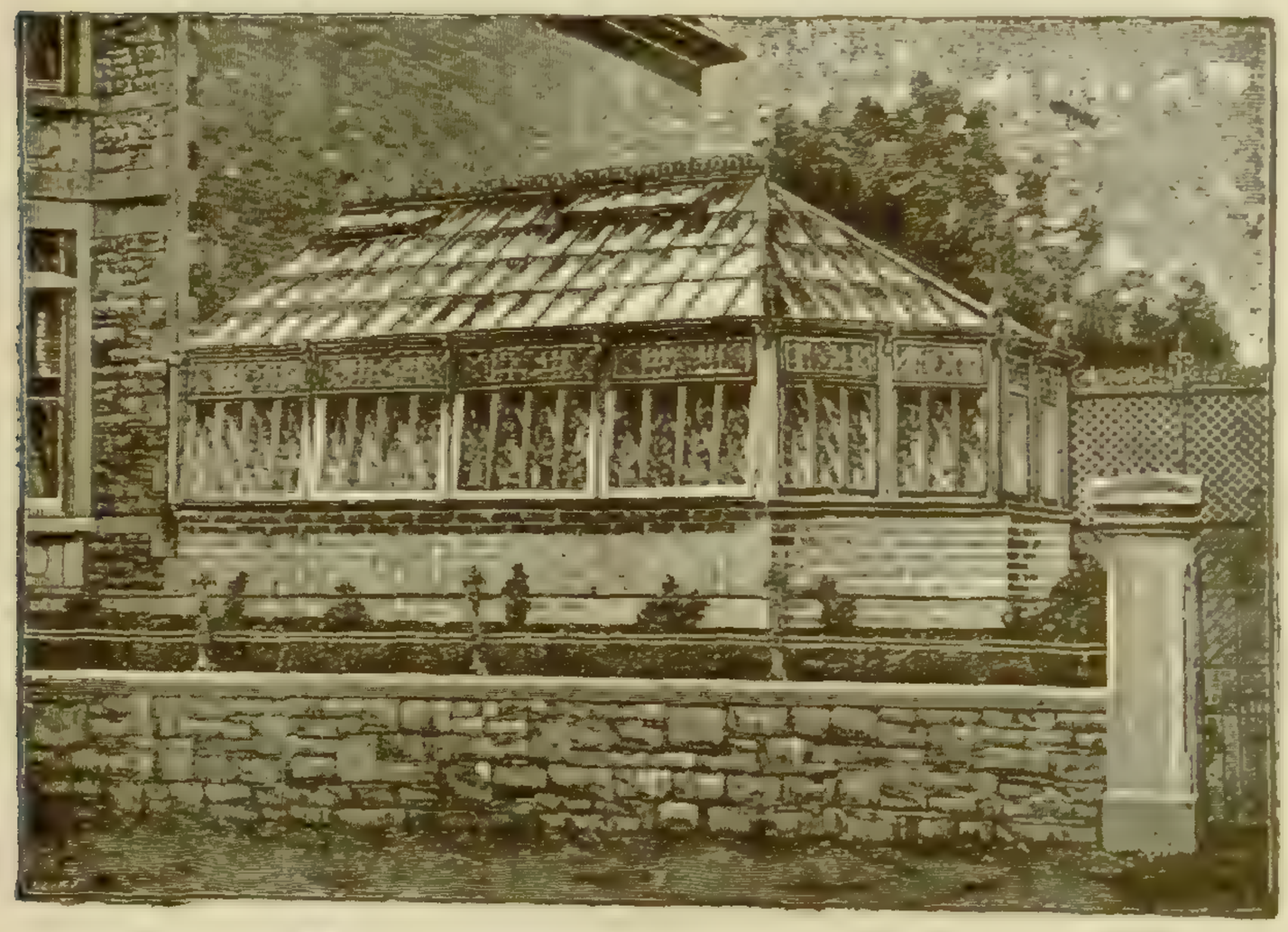

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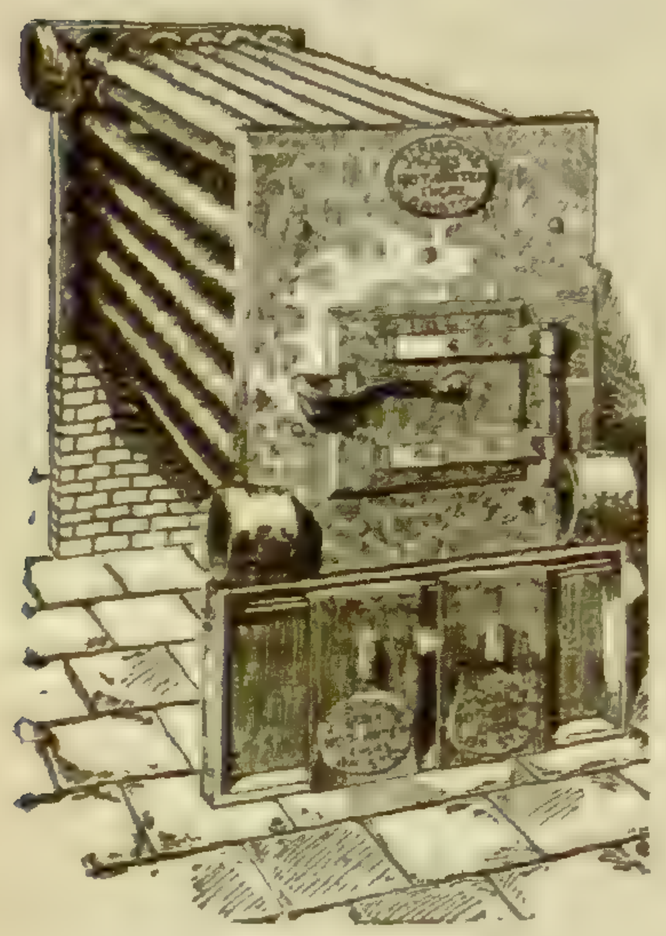

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THE ORCHID REVIEW:

An Illustrated Monthly Journal of Orchidology.

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VOL. XI.] *MARCH*, 1903. [No. 123.

DIES ORCHIDIANI.

HYBRID Odontoglossums promise to become as numerous as those of other popular genera. The last issue of the REVIEW contains descriptions of two fine novelties, each of which gained a First-class Certificate from the R.H.S., and in one case there was an excellent photographic illustration, which should be invaluable when other seedlings of the same parentage flower. There was also the figure of six-hundred seedling Odontoglossums at Walton Grange, which will for ever dispose of the theory that Odontos. cannot be raised from seed. There they are in all stages, from the tiniest seedlings upwards, and one actually in flower. It is fortunate that Mr. Stevens obtained such a graphic record of his work, and the full details given should stimulate others to make experiments. Hitherto growers have been largely groping in the dark, but with such full particulars they should now be able to go straight ahead. I have no doubt that the figure and details have been carefully studied in many an establishment, and it will be interesting to watch the results.

It was also very interesting to have such a series of photographic figures of Odontoglossum crispum varieties as that given in the previous month. It is difficult to realise that any species can be so variable, and a correspondent suggests that some of them must be hybrids. I know the theory, and a little speculation of this kind can do no harm if it is intended only to elicit the truth, and not to dogmatise, especially in a question which is so full of difficulties. I am in hopes that the progress mentioned in my last paragraph will before long throw some light on this question, for the commercial value of these heavily blotched forms will stimulate hybridists to make experiments, even if they care little for the scientific aspect of the question.

It was interesting to have the question of the origin of Paphiopedilum × siamense so completely cleared up as it has been by the experiment of Mr. Reginald Young, so completely recorded last month. I think Mr. Young must take Odontoglossums in hand.

We have now evidence of another kind of progress in hybridisation. It has often been remarked that hybrids were too long in arriving at the flowering stage, but in the Report of the R.H.S. Scientific Committee for February 10th, we read that Mr. Odell called attention to a "Cattleya" seedling which had flowered in the almost incredibly short period of eleven months after the seed was sown. It is said to have been exhibited at "a show," but when, where, by whom, and from what parents, is not stated. The case is so interesting that one wants to know more about it, and Mr. Odell is invited to furnish a supplementary report. Can it be that Calanthe, not Cattleya, was intended? I ask this because in the report of plants exhibited at the same meeting there is a note of a hybrid Calanthe, exhibited from the collection of N. C. Cookson, Esq., flowering in eleven months from the time of sowing. In any case the event is remarkable.

"What's in a name?" "A Provincial," writing in the *Journal of Horticulture*, describes this as an appropriate text for the introduction of the long-standing complaint which numbers of people have against plant nomenclature in its present confused condition. He invites us to "glance for a brief space at some of the unlovely names given to new Orchids shown at the R.H.S. meetings. Note how the different classes are being brought together by hybridising, and tell me if anything like concise or simple names exist. It is not likely that many will be so impressed with the length of a specimen's name to think the plant thereby enhanced in value. Yet what other reason the introducers can have for some of the atrocities noted is hard to understand or explain." He speaks of a legacy of confusion, but unfortunately he gives no examples of the evils to be remedied, and one can only guess what he is driving at. But he is eager for the appointment of a Committee to put things straight, and it will be interesting to await developments. Some of these days, when I have more time, I may be tempted to accept his invitation.

ARGUS.

PAPHIOPEDILUM FAIRRIEANUM.

"WHEN did the mysterious Paphiopedilum Farrieanum last flower in England?" The question is difficult to answer, but several experienced Orchidists tell us that they have never seen a living flower. We do not believe that it has been exhibited at any R.H.S. meeting during the last ten years, and the latest record that we know of is October 11th, 1887, when a plant, bearing three flowers, was exhibited by the late F. G. Tautz, Esq., Studley House, Hammersmith (*Gard. Chron.*, 1887, ii, p. 475). This plant with its three flowers was afterwards figured in the *Journal of*

Horticulture (1888, i, pp. 130, 131, fig. 18). Where this plant is now we do not know. In November, 1889, we saw a living flower, from the collection of Baron Schröder, The Dell, Egham, where there used to be a very good specimen, but we have been told that it has since died, and if the report is erroneous we hope to see it contradicted. Sir Trevor Lawrence has a nice healthy little plant, now with two growths, which Mr. White tells us has not flowered since about 1892 or 1893. About 1894 this plant was divided into three, one piece being used in exchange, but it is said that it afterwards died, as well as one of the pieces kept. A worse result befell a plant under the care of the late Herman Wendland, at Herrenhausen. It had two growths, and an attempt was made to divide it, but both pieces afterwards died. It is evidently a plant of very slow growth, delicate constitution, and very impatient of disturbance, but Sir Trevor's plant keeps healthy and green. It has been kept in the Intermediate house, with such plants as Miltonia vexillaria, for about fourteen years.

The plant was not always rare in cultivation, though it is now difficult to realise the fact. In October, 1881, it flowered with Messrs. James Veitch and Sons, at Chelsea, and was drawn by Mr. Day (*Sketch Book*, xxx, t. 47), who then remarked:—"This has now become a very rare species. I had a score of plants eighteen or twenty years ago, and had flowers by the dozen. In *Sk. Bk.* iv, p. 15, are an Indian Ink sketch of one made in 1863, and a coloured one in 1868. My gardener, R. Stone, allowed the thrips to kill all my plants, and I have not had one for several years. It is a sweet thing. I do not know where it comes from." And, speaking of two hybrids raised from it, he added:—"It is a plant of a strong character, and has imparted its peculiarities in a marked degree to its offspring." In the February previous, when figuring P. × vexillarium (*Sketch Book*, xxviii, t. 9), Mr. Day had remarked of that hybrid:—"It is a charming thing and very interesting, the more so as we have now to deplore the loss of its male parent, C. Fairrieanum, which is now almost extinct in this country, and in Europe too, as I am informed. I drew C. Farrieanum in *Sk. Bk.* ix, p. 15, at which time I had a good many plants, which, as usual when one has plenty of anything, I did not particularly prize. My gardener, Mr. R. Stone, unfortunately, did not either, or he would not have suffered them all to be killed by thrips, as he did, to my great pecuniary loss and damage."

We should be glad to know the experience of others who may be fortunate enough to possess this interesting plant. It is grown with success by M. Opoix, at Luxemburg, and we should like to know his method of treatment. We may add that its flowering period is usually from September to November, and that its history was given at pp. 5-6 of our eighth volume.

THE R. H. S. JOURNAL.

ANOTHER number of the *Journal of the Royal Horticultural Society* has reached us, containing the reports of the various Committees, and of the Rose Conference held at Holland House, the lectures delivered at the Society's Meetings, with a series of valuable Abstracts, Notes on Recent Research, &c. Some of the lectures and reports are profusely illustrated, and altogether the number is an excellent record of the invaluable work which is being done by the Society. The second paper on "Mendel's principles applied to Orchid Hybrids," by Captain C. C. Hurst, is dealt with on another page. Among the Abstracts we observe a reference to an article (from our pages) on Cattleya Roezlii, and the "possibilities" of its being a natural hybrid, when clearly "impossibilities" would have been the better word. And we may note that there is still a great want of uniformity in the method of dealing with Orchid extracts. Allusion is made to the New Hall "now being built" in Vincent Square, and we hope that Orchidists will not be behind their confreres in other departments of Horticulture in supporting the project to provide a home for the Society, and a Hall for its fortnightly meetings, which we regard as a worthy means of celebrating the Society's Centenary.

THE HYBRIDIST.

PAPHIOPEDILUM × ERUBESCENS.—Another very pretty hybrid from Paphiopedilum Charlesworthii has appeared, a flower and leaf having been sent by Mrs. Ross, of Florence, and it shows its origin in a most unmistakable manner. A doubt is expressed as to the second parent, but the missing information is fortunately supplied by the hybrid itself, for the narrow shape and details of the flower, and the narrow wholly green leaf, are strongly impressed with the characters of P. hirsutissimum. The dorsal sepal is broadly ovate, $1\frac{3}{4}$ inches broad, and dull rose-purple in colour, somewhat darker on the disc, paler at the margin, and with a number of minute darker dots at the base. The petals measure $2\frac{1}{4}$ inches long, and spread nearly horizontally, while the characters of P. hirsutissimum are largely retained. The apical halves are rose purple in colour, and the remainder of a duller shade, with very numerous darker dots on the nerves, this portion also being very hairy and the upper margin undulate. The lip is of a dull rose-purple, with many minute darker dots, and an approach to P. hirsutissimum in shape; while the staminode is modified in the same direction in shape, in the ivory white colour being faintly flushed with pink, and in the yellow tooth very dwarf and obtuse.

ORCHIDS IN LEAF-COMPOST.

SOME fine forms of Dendrobium nobile are sent from the collection of Mrs. Grogan, Slaney Park, Baltinglass, Co. Wicklow (gr. Mr. Oliver). Mr. J. H. Grogan remarks:—"I am rather proud of them, as the imported scraps only cost me 1d. each, and some of them are really fine plants now. I don't think there is any doubt that a mixture of fresh leaves (not leaf-mould) is an enormous benefit to Dendrobes. I had bulbs this year of D. Wardianum 4 feet long, from scraps that I bought for 10s. per hundred." The D. nobile forms are certainly well grown, for the flowers are large and beautifully developed, and show the usual amount of variation, some of the forms being very richly coloured. Mr. Grogan emphasises the difference between fresh leaves and leaf-mould, and we appreciate the point, but we do not know how far it is advisable to use the leaves in an absolutely fresh condition. Most of our experts say when just sufficiently decayed to break up if rubbed through a coarse sieve, the finer particles being afterwards extracted. The probability is that the roots feed upon the gases liberated during the process of decay, and if this is too far advanced they do not benefit to the same extent, besides the danger of the compost becoming waterlogged.

COMPOUND HYBRIDS AND NOMENCLATURE.

AN interesting hybrid from the collection of Reginald Young, Esq., Sefton Park, Liverpool, raises a very curious point in nomenclature. It was raised from Paphiopedilum × nitens ♀ and P. × politum ♂, and thus is composed of ¼ each of P. barbatum, P. insigne, P. venustum, and P. villosum, and in this respect is identical with P. × Boyleanum. But the latter was obtained from P. × Crossianum ♀ and P. Harrisianum ♂. It is curious to note that a hybrid of identical composition might also be obtained by crossing P. × Ashburtonæ and P. Measuresianum. The question then is whether all three should not be considered as forms of one? We are inclined to answer in the affirmative, for it would appear that the same result may be arrived at by three different methods. Of course, a series of plants would show a considerable range of variation, as compound hybrids invariably do, and the more distinct could receive varietal names. Thus the present one could be called P. × Boyleanum var. Youngii, as, according to the description, it differs from the original form in having the dorsal sepal closely spotted with brown, and the lower halves of the petals somewhat less so. Horticulturally, it can best be compared with some forms of P. × Ashburtonæ.

R. H. S. ORCHID COMMITTEE.

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PAPHIOPEDILUM × HERA AND ITS VARIETIES.

IN the last issue of the *Journal of the Royal Horticultural Society*, a very

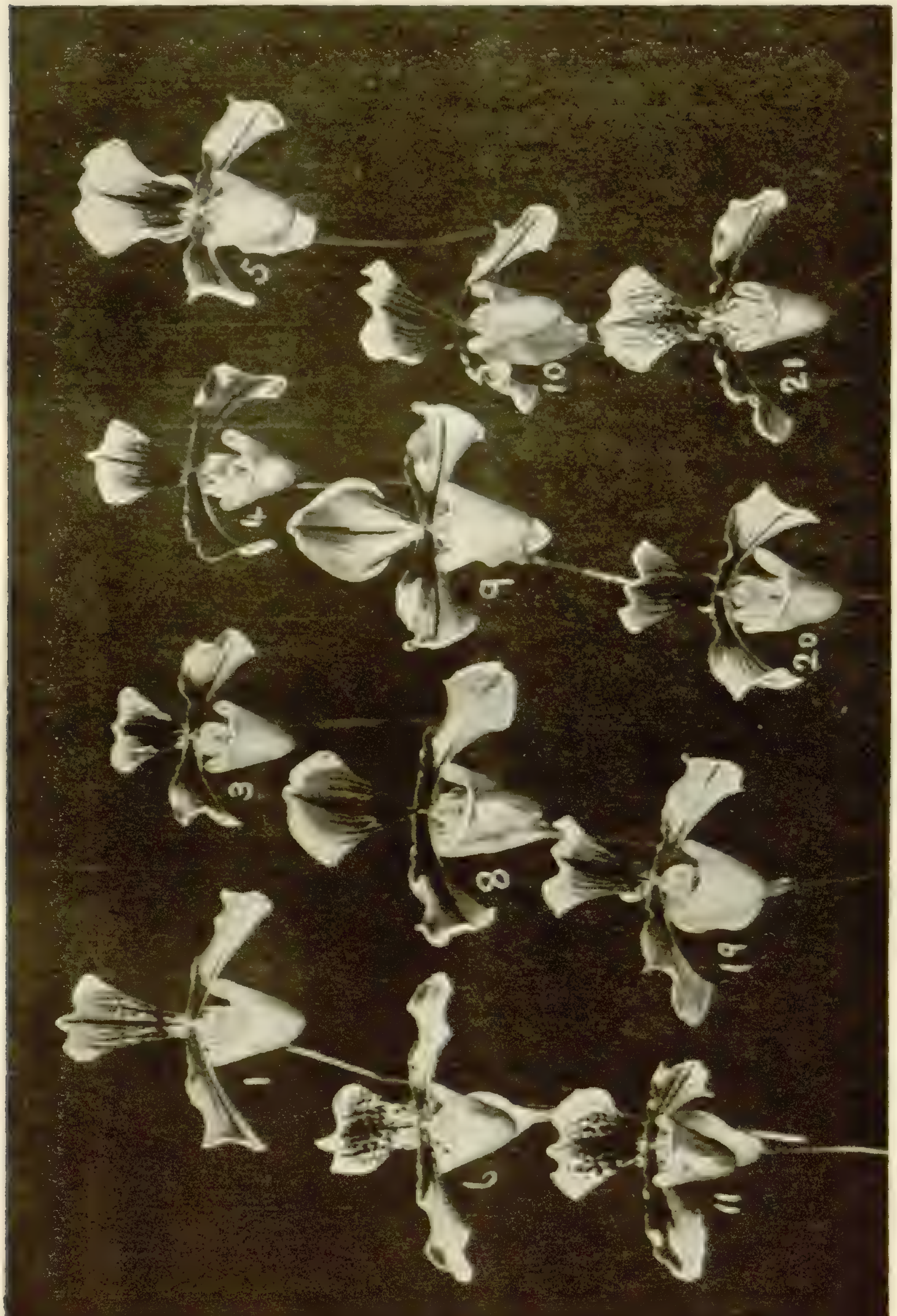

FIG. 10. PAPHIOPEDILUM × HERA (twelve varieties).
VAR. CÆSAR (3), DAKINI (4), STORMBERG (5), HURSTII (6), MACULATUM (11) and PUNCTATUM (21).

interesting paper by Captain C. C. Hurst, F.L.S., appears, entitled "Mendel's Principles applied to Orchid Hybrids," illustrated by three photographic blocks, representing thirty varieties of Paphiopedilum ×

Hera, from the author's collection. These figures, by the kindness of the Council of the R.H.S., we are able to reproduce, and a glance will show what a remarkably polymorphic series they represent. The object of the paper is to test how far Mendel's principles can be applied to hybrid Orchids, and

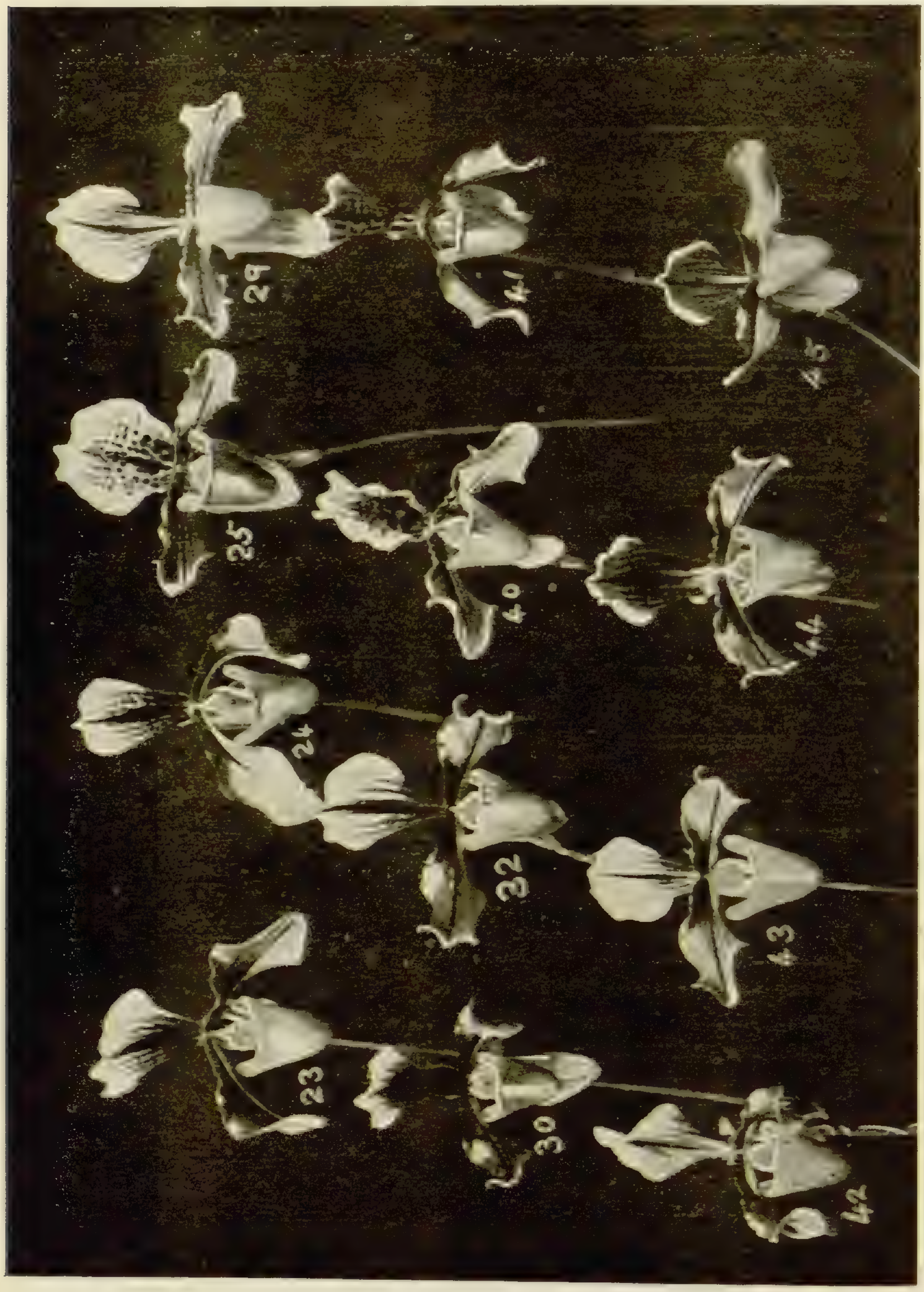

FIG. 17. PAPHIOPEDILUM HERA (twelve varieties).
VAR. BURBAGENSE (25).

for this purpose a series of 49 hybrids from Paphiopedilum × Leeanum ♀ and P. Boxallii ♂, raised in the collection, were chosen. Thirty of them happened to flower together in the early part of last year, and these were photographed in three groups, as shown. The numbers attached indicate

the order of their first flowering, and have no other significance. These photographs give an excellent idea of the remarkable range of variation in the thirty flowers represented, and Captain Hurst remarks that "of the forty-nine that have already flowered no two are exactly alike, and the extreme forms are very distinct indeed." It may here be remarked that a

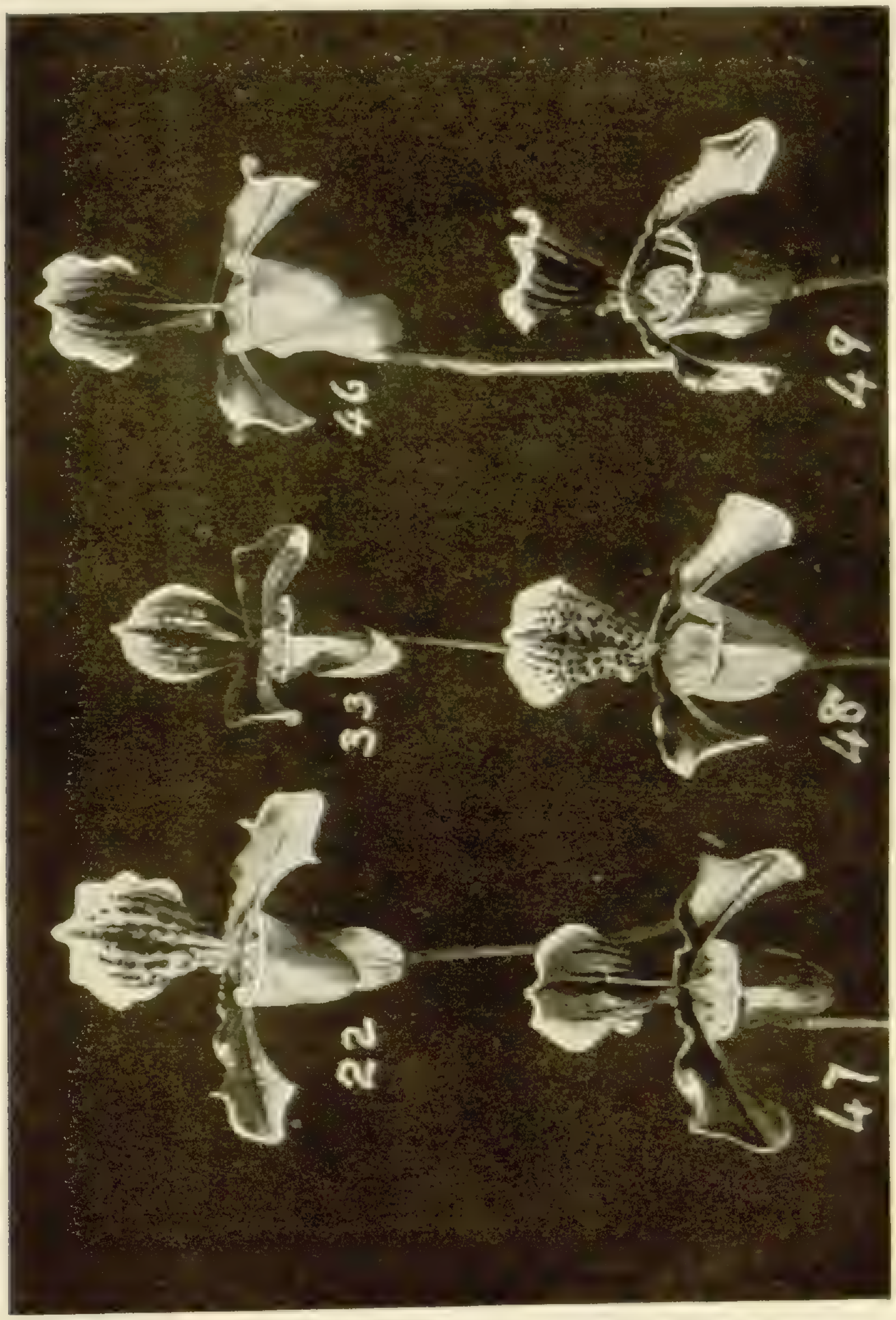

FIG. 18. PAPHIOPEDILUM HERA (SIX varieties).

paper by Captain Hurst, entitled "Variation in Secondary Hybrids," appeared in our last volume (pp. 74—75), and that it was accompanied by a series of twenty-six of the flowers here represented; we may therefore refer our readers to the comments made at the time as to their horticultural value. The forms are not here arranged in the four groups under which they were then classified by Captain Hurst, but as nine varieties were then

mentioned by name, we may now indicate which are their respective portraits. The numbers correspond to those given on the blocks. The varieties are:—Cæsar (3), Dakini (4), Stormberg (5), Hurstii (5), maculatum (11), punctatum (21), and burbagense (25). It may be added that Dakini and burbagense each received an Award of Merit from the Manchester Orchid Society on January 24th, 1901, but, as remarked at page 75 of our last volume, "a dozen really good things could easily be selected."

It may be observed that the named varieties are for the most part hose which flowered first, but a few others may eventually be selected for such distinction. It would be interesting to know whether any of them agree with forms already named in other collections.

A summary of Captain Hurst's conclusions respecting Mendel's principles must be deferred till our next issue.

CALENDAR OF OPERATIONS FOR MARCH.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

Now that the season is advancing, the plants will be greatly aided by the increasing length of the days and by sun-heat. This latter will necessitate getting all blinds and shading into working order without further delay. The plants generally will require to be protected from the hot sun during midday, for the concentration of its rays will soon cause disfigurement to foliage, and at this time of year one cannot be too careful in this respect. At the same time, on no account allow the blinds to be down longer than is really necessary. I do not agree with permanent shading of any sort. It excludes the light, which is a very necessary element in successful Orchid culture. The best system of shading is the ordinary roller blinds. These should be raised about six inches above the glass, by having a framework of wood or iron fixed on the roof for the blinds to roll on. By this means plenty of light and air is allowed to pass between the glass and blinds, which will greatly assist in keeping down the temperature in hot weather.

During this month the fluctuations of temperature will no doubt be great, owing to the changeability of our climate. The houses should be carefully regulated according to the weather; should this continue mild, more moisture may be kept in the atmosphere, and ventilation should be gradually increased whenever practicable.

In the warm houses, where such plants as Vandas, Aërides, Angræcums, &c., have been potted or top-dressed, a slight rise in the temperature by night may be allowed, but in other departments the temperatures previously advised should be followed.

In most collections the principal work now requiring attention is

potting, cleaning, and re-arranging the plants. Before commencing the latter process, see that the roof glass is well washed, both outside and in. A great many plants will require attention in the way of potting at this season, and those that grow in the hottest houses may be taken in hand first. In the Cool house a few Odontoglossums may require attention, and should be seen to. Those requiring more root room may be repotted, and some may require only a little top dressing. As mentioned in last month's Calendar, on no account disturb any Orchid unless absolutely necessary. If there be any suspicion of the soil being in an unsatisfactory condition below, carefully pick it all out, down to the drainage, and well wash the crocks with soft tepid water to remove any accumulation of dirt, allowing the roots and crocks to become thoroughly dry before giving fresh material.

Lælia anceps and its many pretty varieties, that have been resting and dry since blooming, may now be repotted or otherwise renovated, as circumstances require, for roots will soon begin to push forth. Use shallow well-drained pans or baskets ; keep the plants well elevated above the rim, and pot firmly with the best fibrous peat and sphagnum moss, mixing a few pieces of crock with it, so as to allow the water to pass freely through. After repotting, only enough water should be given to prevent the pseudo-bulbs from shrivelling, or the young roots from damping off, which they are liable to do if too much water is used before the plants are re-established. Keep the temperature cool and the compost on the dry side, until the young growths appear, when both may be gradually increased.

Lælia grandiflora (majalis), the beautiful summer-flowering species, should always be grown in pans or baskets and suspended. It has now had a good long, dry rest, and will soon commence to push new growth ; very little water however will suffice during the next few weeks. It is rather a shy bloomer, and to get the compost saturated at this early date would probably mean no flowers at all. When the new growths are prominent, say about an inch long, and the flower bud, if any is to appear, is safely formed within, a good watering may be given, and the plants should be encouraged to grow rapidly and strongly by giving a warm position in the Cattleya or East Indian House until the blooming season is over.

Cœlogyne cristata and its pure white variety are amongst the best winter flowering Orchids we have, and worthy of any care and attention bestowed upon them ; for cutting and decorative purposes they are invaluable. It is now a good time to repot any over-grown specimens, or any that require to be broken up and made into smaller plants, using good fibrous peat, leaf soil, and moss in equal proportions. Unless repotting be absolutely necessary for these plants, do not disturb their roots in any way, but rather if in good condition allow them to remain so. When

growth is in full progress do not stint them for water, as anything approaching dryness at the root during this stage of growth will be detrimental to their well-doing. C. cristata delights in plenty of light, but not actual sunshine. A position at the coolest end of the Cattleya House will suit it the whole year round.

Thunias will now require re-potting. They may be potted singly, or placed six or seven bulbs about three inches apart in a ten-inch pot, which should be half filled with drainage, using loam, peat, and moss in equal proportions. Choose a position in the warmest house and as close to the glass as possible. The successful blooming of these plants depends largely upon the amount of light they get. See that each bulb is secured firmly to a stick, and when the growths are well advanced and rooting freely, give abundance of water, and when the growths are half made up, as soon as the flower buds can be felt in the newly-forming stems, an occasional watering with liquid cow manure. Thunias can easily be propagated by taking off the back bulbs, cutting them at the joints into pieces about six inches long, and inserting them as cuttings into a mixture of sphagnum and coarse silver sand.

Calanthes of the vestita group will soon be on the move again, and may be repotted before the appearance of new roots. A good compost is necessary, and may consist of one-half good fibrous loam, one-fourth leaf soil, and the remainder finely chopped moss, with a good sprinkling of coarse silver sand or finely broken crocks; the whole being well mixed together. The compost being prepared, should be laid a few days prior to use in a suitable place to get warm. Previous to repotting, shake out all the old soil, and shorten back the dead roots to about an inch. This portion will help to keep the plants steady until new roots obtain a firm hold of the compost. Clean pots should be used, the sizes varying according to the discretion of the cultivator. I practice potting them singly, using five or six inch pots for the strongest bulbs, and proportionately smaller ones for the others. Give good drainage, the pots being rather more than half filled with clean crocks, and place upon this a layer of the most fibrous part of the compost, in order to prevent the drainage becoming choked. In filling the pots the soil should be shaken down moderately firm, to within an inch of the top; then place the plant on the surface, with additional soil added, so that the base of the bulbs is just covered. This will leave about half an inch of space, which will allow of a little top dressing of good fibrous loam when the plants become established. After potting place them in their growing quarters, which should be a light position near the glass in the warmest house. Give no water at the roots for a few weeks, merely damping the stage, and syringing between the pots. As the young growths advance a slight sprinkling may

be given, doing this with care, especially before the young roots have a firm hold. If too much water be given the young growths will quickly turn black. When well rooted abundance of water will be required, and at each alternate watering weak liquid cow manure will be beneficial. I do not hold, however, with any excess of manure, for more often than not this leads to that dreaded disease, black spot, and prevention is always better than cure.

HABENARIAS.—These have been resting, on a dry shelf close to the glass in the Warm House, since the autumn, and will soon begin to push new growth from the apex of the tubers. Use pots or pans as small as possible for repotting purposes, giving plenty of drainage, covering over with a thin layer of moss, and filling up with the following compost :—One-half should consist of good fibrous peat, loam, and moss in equal proportions, the other half of broken potsherds, adding a sprinkling of coarse silver sand. Mix these well together and pot moderately firmly. When the operation is completed, sprinkle the soil lightly with a fine rose water-pot, and place the plant on the shady side of the Warm House, and as near the roof glass as possible. When in full growth a sharp look-out must be kept for thrips, which will soon disfigure the foliage, and give the plant an unsightly appearance.

The genera Catasetum, Mormodes, Cycnoches, Cyrtopodium, and Spathoglottis are both curious and interesting, and all delight in warm treatment. They have had a long, complete rest, and will now be commencing to grow. Immediately the young shoots appear they may be shaken out of the old compost and repotted, using well-drained shallow, hanging pans. They mostly succeed best in a compost of chopped sphagnum and broken crocks. After repotting, water sparingly for a time, until the roots get a firm hold, when abundance may be given.

THE AMATEUR'S COLLECTION.

I HAVE been asked to give a few details each month for the guidance of amateurs and beginners in Orchid culture, and will commence with a few general remarks.

The prevailing idea is, that Orchids are not only expensive to buy, but that the cost of cultivation is such as to put them beyond the reach of most amateur gardeners. Our object will be to show that this is not the case, and that Cool Orchids may be obtained and grown at no greater cost than ordinary greenhouse plants. The idea that Orchids are expensive to buy is, no doubt, due to a great extent to the reports, which appear at various times in the press, of Orchid sales, at which some rare and special varieties have fetched enormous prices. The public argue that as such plants have been sold for say three figures,

therefore all plants belonging to this family will cost about the same. They are very much surprised when you tell them they are mistaken, and that while some fine varieties have fetched large prices, many beautiful kinds can be bought for a few shillings. Some of these less costly plants will be as beautiful, and give as much pleasure, as the highest-priced gems.

It is not necessary, in order to be an Orchid grower, that one should be a collector of curiosities, or aspire to have that which nobody else possesses. Orchids are generally connected in the public mind with great heat, and are therefore believed to involve a large expenditure in fuel, but it will be our endeavour to show that Cool Orchids may be grown by any one with a limited means. We shall give a list of Orchids, and how to grow them, which will not only require a perfectly cool treatment, but are second to none in beauty and interest.

The first thing necessary is a suitable house, and it will be well for our purpose to describe this. The Cool Orchid House is best, in my opinion, in the form of a span roof, as against the lean-to. This may run due north and south, and the width should be twelve feet, and as long as may be required to accommodate the number of plants proposed to be grown. The height should not be more than eleven feet in the centre, and the lights in front should be two feet high, and not made to open. Ventilation, for which there must be ample facilities, is best secured by shutters let into the brick wall; and working on a centre pin, so that the current of air may be easily regulated. These ventilators should be near the ground, so that in cold frosty weather the air may be warmed by passing between the hot water pipes. The top ventilators should run alternately on both sides the house, its whole length, and be about two feet wide. Although this is a cool house, hot water pipes will be required for the exclusion of frost in severe weather, therefore have in your house four pipes, two flow and two return. With this quantity, kept no hotter than you can bear your hand upon, the required temperature may be kept up, without dryness in the atmosphere. It will also save fuel, and curtail the cost in labour to a great extent.

The temperature of your house in winter should not fall below 45°, or rise above 50° to 55°. It will be found more difficult to keep the plants cool enough in summer than warm enough in winter. Outside blinds will be indispensible. They should be of a substantial kind, yet of a make to exclude as little light as possible. I know nothing to equal lath blinds, and although they cost more in the first outlay, they will wear out those of the cheaper kinds. These should run on iron rods fixed to the roof, so that there should be at least nine inches of space between the shading and

the glass, thus causing a current of air which will keep the glass cool, and aid in keeping the internal atmosphere much more genial than would be the case if they were to lie flat on the glass.

Do not have any concrete or tiled floors; they radiate the heat, and are most injurious to the plants. The floor should consist of refuse from the gasworks which is commonly known as "breeze." This should be laid four inches thick on the bare ground, with ordinary wood lattices down the centre, for walking on. Such a floor, when damped, gives out that moisture in which all Orchids delight. A good large tank should be placed inside the house, to catch the rain water from the roof, for soft water is always requisite for Orchid growing.

The stages should be four feet wide, running along both sides of the house, and should be on a level with the bottom of the front glass lights. These should be made of slate, supported on cast iron pillars, and a covering of shell shingle sold for the purpose, about two inches deep, should be spread on the slates. A few wires will be necessary, stretched along the roof, for suspended plants, and the house will be completed.

The next item is the buying of the plants. The cheapest and most interesting way to start a collection is to buy unflowered plants from the importers, either direct or at sales by auction, which are constantly taking place during the year. In this way, by obtaining newly imported plants from a reliable source, you get a large proportion of good serviceable flowers, many of which may be called excellent, while there is the chance of getting something really good.

(To be continued.)

LÆLIO-CATTLEYA × SCHILLERIANA ROSEA.

THIS is an exceptionally brilliant form of Lælio-cattleya × Schilleriana from the collection of J. Wilson Potter, Esq., of Croydon. It was purchased from an importation sold at Protheroe and Morris's Rooms by the late Mr. Thomas Rochford, and there has been a doubt as to its identity. It has, however, the lip of a deeply lobed form of the hybrid named, and the perianth has the characteristic shape, with the petals 1¼ inches broad. But the colour is quite exceptional, for both the sepals and petals are of a beautiful shade of rose-pink, while the front half of the lip is of the most intense crimson purple, the remainder being rosy with darker veins. It is just such a variety as might be expected from a rosy form of Cattleya intermedia crossed with one of the darkest forms of Lælia purpurata, and is excellent in shape and beautiful in colour.

R. A. ROLFE.

LYCASTE × BALLIÆ.

THE annexed figure represents a beautiful little specimen of Lycaste × Balliæ, bearing thirteen flowers, which was exhibited by Messrs. Charlesworth & Co., Heaton, Bradford, at the R.H.S. meeting on January 13th last, as recorded at page 51. It is a remarkably floriferous plant, all the flowers being produced from a single pseudobulb. The plant was derived from a cross between L. Skinneri and L. plana Measuresiana, and was exhibited by G. Shorland Ball, Esq., Ashford, Wilmslow, at a meeting of

FIG. 19. LYCASTE × BALLIÆ.

the Manchester Orchid Society on November 10th, 1898, when it obtained a First-class Certificate, as recorded at page 371 of our sixth volume. The flowers are described as having rosy terra-cotta sepals, rosy petals fading into white at the tips, and a white lip irregularly spotted with carmine. We do not know whether it was raised by Mr. Ball, but other plants are in existence which are ascribed to the same parentage, and one of them is called a natural hybrid. We should like to know the precise history of the plant.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of this Society was held at the Drill Hall, Buckingham Gate, Westminster, on February 10th, when an extremely fine display of Orchids was seen.

Sir Trevor Lawrence, Bart., Burford, Dorking (gr. Mr. White), received a Silver Flora Medal for a splendid group, consisting largely of Dendrobiums, the more noteworthy being D. × Wigamiæ, D. × Cybele, D. × Curtisii, D. × Juno, D. × xanthocentrum pallens, D. × Hebe, and others, covered with flowers, together with Sophrolælia × Psyche, Lælia × Mrs. Gratrix, Lælio-cattleya × Adolphus, and Sophronitis Rossiteriana. A First-class Certificate was given to Dendrobium × Wigamiæ xanthochilum, with bright yellow flowers and a maroon disc to the lip, and Cultural Commendations to well-flowered specimens of Epidendrum polybulbon and its variety luteo-album; while a Botanical Certificate was granted to Bulbophyllum suavissimum, having eighteen spikes of small fragrant yellow flowers.

Captain G. L. Holford, Westonbirt, Tetbury (gr. Mr. Alexander), staged a fine group, for which a Silver Flora Medal was awarded. It contained good examples of Odontoglossum × Adrianæ, O. × Wilckeanum, O. × loochristiense Lady Victoria Grenfell, Lælio-cattleya × Doris, L.-c. × Afterglow, with bright yellow flowers, Selenipedium × Sedeni candidulum, and a fine example of Miltonia × Bleuana grandiflora. An Award of Merit was given to Odontoglossum × loochristiense Lord Howick, a prettily spotted form, and a Cultural Commendation to Lycaste × Mary Gratrix, having seven fine flowers.

J. Colman, Esq., Gatton Park, Reigate (gr. Mr. Bound), received a Silver Flora Medal for a fine display of Orchids, consisting chiefly of Dendrobiums and white varieties of Lælia anceps. L. a. waddoniensis, and Dendrobium × Ainsworthii Colmanii were noteworthy, the latter being well suffused with purple and the lip very dark. Masdevallia tovarensis, M. × Courtauldiana, and some good Cypripediums were also included.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), exhibited a fine group of Odontoglossums and other plants, which gained a Silver Flora Medal. It contained seven fine plants of Oncidium splendidum, Cypripedium × Ajax, Cattleya Trianæ, Epidendrum × Endresio-Wallisii, Dendrobium pallens, D. atroviolaceum, the rare Bulbophyllum rufinum, Cœlogynes, Vandas, Lycastes, and Phalænopsis.

N. C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), showed Phaio-calanthe × Ruby, and a hybrid Calanthe, flowering within eleven months from sowing; also the remarkably fine and handsomely

blotched Odontoglossum crispum Cooksoniæ, to which a First-class Certificate was given.

W. M. Appleton, Esq., Weston-super-Mare, showed a variety of Cattleya Trianæ and Cypripedium × Lady Roberts.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), staged a splendid example of Odontoglossum triumphans, which had been grown in a clear glass pot for two years, its fine root development being very interesting.

R. Briggs-Bury, Esq., Bank House, Accrington (gr. Mr. Wilkinson), received an Award of Merit for Cypripedium × Minos Young's variety (Spicerianum × Arthurianum).

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Gilbert), exhibited Cypripedium × Hera, a pretty white-petalled form of Cattleya quadricolor (chocoensis), and Lælio-cattleya × Wellsiana magnifica (L. purpurata × C. Trianæ), the latter receiving an Award of Merit.

M. Louis Fournier, Marseilles (gr. Mr. Cleverly), sent a fine flower of Lælio-cattleya × luminosa.

Sir W. Marriott, Down House, Blandford (gr. Mr. Denny), showed a fine spike of Dendrobium spectabile.

F. A. Rehder, Esq., Gipsy Hill, S.E. (gr. Mr. Norris), showed Cypripedium × Ianthe superbum and C. × Tia, a hybrid from C. exul.

Sir F. Wigan, Bart, Clare Lawn, East Sheen (gr. Mr. Young), exhibited Cypripedium × Eira (Chamberlainianum × concolor).

H. Whateley, Esq., Kenilworth, showed some hybrid Cypripedes.

Mr. Alex. Wright, Reading, exhibited Cypripedium × Mrs. A. W. Sutton.

Messrs. Sander & Sons, St. Albans, exhibited a splendid group, which gained a Silver-gilt Flora Medal. It contained three very fine forms of Odontoglossum × Wilckeanum, of which the variety Rex received an Award of Merit, a magnificent specimen of Pleurothallis Roezlii, Phaius × Norman, P. × Marthæ, Cypripedium × Illione (Lynchianum × insigne Harefield Hall var.), C. × illustre (Lathamianum × nitens), and many others.

Messrs. J. Veitch & Sons, Chelsea, obtained a Silver Flora Medal for a fine group containing Cypripedium × Actæus, C. × Leonidas, C. × Lathamianum, C. × Euryades, C. × Hera, Dendrobiums, Lælio-cattleyas, and others.

Messrs. Charlesworth & Co., Heaton, Bradford, staged a good group, including Cattleya Trianæ delicata, C. × Enid (Mossiæ × Warscewiczii), Miltonia Endresii, M. × Bleuana grandiflora, Odontoglossum Harryanum triumphans, Lælio-cattleya × luminosa, L.-c. × Sunray, and the handsome Cypripedium × Hera Madeline.

Messrs. Hugh Low & Co., Bush Hill Park, staged a fine group, which received a Silver Flora Medal. Good examples of Cypripedium × Euryades, C. × orphanum, and C. × Olivia were included, together with many Dendrobiums, Odontoglossums, and others.

Mr. J. Douglas, Edenside, Great Bookham, showed some Lælia anceps varieties.

Messrs. Stanley, Ashton & Co., Chase Side, Southgate, showed a pretty hybrid Odontoglossum, having reddish-brown markings, called O. × Ruckero-triumphans.

The Report of the Scientific Committee held on the same date contains the following references to Orchids :—

Cattleya, rapid flowering.—Mr. Odell called attention to the very short time in which a plant exhibited at a show had taken to flower, for it was sown only eleven months ago.

Hybrid Calanthes and the Mendel Theory.—Dr. Masters showed purple and white flowers received from Mr. Chapman, who wrote as follows :—"The hybrid Calanthes, C. × Sibyl (pure white) and C. × Oakwood Ruby (the deepest coloured variety in cultivation) were both obtained from the same pod of seed, the original cross being between C. × Veitchii and C. vestita rubro-oculata. From selections of the best varieties derived from this batch of seedlings, and intercrossing among themselves, and continuing the interbreeding for four or five generations at Oakwood, these remarkable results were obtained. This is interesting at the present moment, seeing that Mendel's *Laws of Inheritance* have been placed so prominently before the members of the Scientific Committee of the Royal Horticultural Society. It certainly goes to prove that, instead of reversion to the original crossing by interbreeding, the result has produced and placed before us the widest possible variations from the original cross, and from each other; showing that Mendel's Laws cannot be applied universally in the way some of our specialists have indicated. It may be interesting also to state what effect interbreeding has had upon the constitution of these plants. It is impossible to describe the diminished size of the bulbs, while the general constitution of both varieties is exceedingly delicate. C. × Oakwood Ruby I consider the most difficult subject to cultivate among the whole genus Calanthe. I regard it as one of the most difficult Orchids I have ever had to deal with. I hope, before the season is over, to place before the Committee other results of interbreeding of Orchids, which I think will go to prove the inapplicability of Mendel's Laws to Orchids."

Cypripedium synanthic.—He also showed drawings of the flower of Cypripedium villosum received from the Horticole Coloniale, having six

stamens and two stigmas, the sepals being multiplied. The appearances were due to the fusion of two or three flowers into one.

AT the meeting held on February 24th there was a most extensive and brilliant display, in which Dendrobiums predominated, and no less than thirteen Medals were awarded for groups.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), received a Silver-gilt Flora Medal for a magnificent group, containing very fine examples of Dendrobium nobile Pitt's var., D. n. nobilius, D. n. Ballianum, D. × pallens, D. × Apollo grandiflorum, D. × Owenianum, varieties of Epidendrum × Endresio-Wallisii, and Cattleya Trianæ "Our King," together with fine Odontoglossums, Cypripediums, &c.

R. G. Thwaites, Esq., Streatham (gr. Mr. Black), gained a Silver Flora Medal for a fine group, chiefly of Dendrobiums, including D. × Venus, D. × Isis (moniliforme × hercoglossum), fine forms of D. nobile, with a fine D. n. album, and D. × Wiganianum album (nobile album × Hildebrandii), the latter receiving an Award of Merit. Some good Sophronitis grandiflora were also shown.

N. C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), was awarded a Silver Banksian Medal for a good group, containing some fine Dendrobiums, Cypripedium × Helen Oakwood variety, a fine example of Odontoglossum crispum with a very strong spike of thirteen splendid flowers, Phaius × Norman, a good specimen of P. simulans with five fine spikes of flowers (Cultural Commendation), and P. × Clive (Norman × simulans), the latter receiving an Award of Merit.

Capt. G. L. Holford, Westonbirt, Tetbury (gr. Mr. Alexander), received a Silver Banksian Medal for an effective group, containing Cypripedium × Captain Holford, Lælio-cattleya × warnhamensis, Odontoglossum × Adrianæ Lady Evelyn Grey, a fine plant of D. primulinum with over 100 flowers, D. Wiganianum xanthochilum, and D. × Ophir (signatum × aureum), the latter receiving an Award of Merit.

Sir Trevor Lawrence, Bart., Burford, Dorking (gr. Mr. White), showed a nice group, consisting chiefly of hybrid Dendrobiums, which gained a Silver Banksian Medal. Some varieties of D. × melanodiscus, D. × Juno, D. × pallens, and D. × Dido, a good example of Cattleya Trianæ Backhouseana, two plants of Spiranthes colorata maculata, and other things were included.

Mrs. Haywood, Woodhatch Lodge, Reigate (gr. Mr. Salter), staged a group of well-grown Dendrobiums, including D. × splendidissimum var. Mrs. Haywood, D. × Salteri (splendidissimum grandiflorum × Findlayanum), and D. × melanodiscus Sunray, each of which gained an Award of Merit.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), received a Silver Banksian Medal for a good group, containing Lælia anceps Hollidayana, a large-flowered variety of Odontoglossum Rossii, O. crispum aureum rosefieldense, and some others.

F. A. Rehder, Esq., Gipsy Hill (gr. Mr. Norris), also received a Silver Banksian Medal for a good group of Dendrobiums and other Orchids.

J. Bradshaw, Esq., Southgate (gr. Mr. Whitelegge), sent Lycaste Skinneri, Lælio-cattleya × Hon. Mrs. Astor, and a few pretty varieties of Cattleya Trianæ.

H. Little, Esq., Baronshalt, Twickenham (gr. Mr. Howard), showed Lælio-cattleya × Captain Percy Scott.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Gilbert), showed Lælio-cattleya × Gottoiana Mrs. Douglas, L.-c. × Charlesworthii, Cypripedium insigne Gilberti, and C. × Angelus superbum.

Messrs. J. Cypher & Sons, Cheltenham, were awarded a Silver-gilt Flora Medal for a very fine group, consisting principally of well-grown Dendrobiums, and including profusely-flowered forms of D. nobile, D × Apollo album, D. × A. grandiflorum, D. × aureum Ellerianum, D. × Rubens grandiflorum, D. × Virgil, and others, together with Cypripediums, Sophronitis, Masdevallias, &c.

Messrs. J. & A. A. McBean, Cooksbridge, showed a fine group containing Dendrobiums, Epiphronitis × Veitchii, Cymbidium eburneum, Sophronitis grandiflora, a richly-coloured Odontoglossum × Ruckerianum, and others. A First-class Certificate was given to O. crispum Grace Ruby, a large white form evenly spotted with purple.

Messrs. Sander & Sons, St. Albans, staged a fine group, for which a Silver Flora Medal was awarded. It contained many fine Phaius, Dendrobiums, and Cypripediums, of which latter C. × beechense Sander's variety, C. × villosum Golden King, and C. × Annie Measures were the most noteworthy.

Messrs. Charlesworth & Co., Heaton, Bradford, secured a Silver Banksian Medal for a fine group, containing a splendid heavily blotched form of Odontoglossum crispum, O. luteo-purpureum Vuylstekeanum, O. × Rolfeæ, Cœlogyne sparsa, Cypripedium × Lawrebel, C. × Leysenianum, Cattleya Trianæ Beyrodtii, Lælio-cattleya × luminosa, L.-c. × Digbyano-Mendelii, and the handsome Zygopetalum crinitum cœruleum, which received a First-class Certificate.

Messrs. J. Veitch & Sons, Chelsea, received a Silver Banksian Medal for a good group containing Lælia × Mrs. Gratrix, Lælio-cattleya × Pallas, Cypripedium × Euryades guttatum, some varieties of C. × Leonidas, the deep scarlet Epidendrum × Delphi (pristes × O.Brieni-anum), and other hybrids.

Messrs. H. Low & Co., Bush Hill Park, secured a Silver Banksian Medal for a good group, containing Lycaste × Cappei, Dendrobium aggregatum, D. aureum, D. Boxallii, D. crassinode, D. Jamesianum, D. Wardianum, and other Dendrobiums, together with some fine forms of Cattleya Trianæ.

Messrs. Stanley, Ashton & Co., Chase Side, Southgate, exhibited Odontoglossum × Wilckeanum southgatense, and a dark form of O. × loochristiense.

Messrs. D. Lowell & Son, Horticultural Sundriesmen, Ravenscourt Avenue, Hammersmith, showed a selection of Orchid pots in all sizes, potting material, &c.

AT the meeting of the Scientific Committee held on February 24th the following communication from Captain C. C. Hurst was read :—

MENDEL'S PRINCIPLES APPLIED TO CALANTHE HYBRIDS.—With reference to the hybrids, C. × "Oakwood Ruby" and C. × "Sibyl," sent to the last meeting by Mr. Chapman, and to his expression of opinion that they "prove the inapplicability of Mendel's Laws to Orchids." If the pedigree of these two hybrids is correctly recorded in Mr. Chapman's notes, it seems quite clear that we have in them a typical Mendelian case, and that Mr. Chapman's opinion to the contrary must be due to a misunderstanding of the Mendelian Principles. According to Mr. Chapman's notes, C. × "Oakwood Ruby" with dark coloured flowers, and C. × "Sibyl" with pure white flowers, were raised from the same capsule with the following pedigree, which for the sake of simplicity I have reduced to Mendelian terms :—

1st gen.	C. rosea × C. vestita	=	C. × Veitchii, vars.
,,	Rose × White	=	Light rose and deep rose-carmine.
,,	Dominant × Recessive	=	D.R.
2nd gen.	D.R. × R.	=	1 D.R. × 1 R.
3rd-7th gen.	D.R. × D.R.	=	1 D. × 2 D.R. × 1 R.

Hence we see that by continued selection of the darkest D.R's. in each generation, the 7th gen. produces the darkest variety C. × "Oakwood Ruby" (D.R.) and also the pure white C. × "Sibyl" (R). which is in strict accordance with the Mendelian expectation. Further, according to the Mendelian Principles, C. × "Oakwood Ruby" being an impure Dominant (D.R.) should when self-fertilised continue to throw dark forms, rose forms, white forms, and all intermediate colours, while C. × "Sibyl" if a pure Recessive, when self-fertilised, should throw only white forms. Here then is a fine opportunity for Mr. Chapman, with his well-known cultural skill and Oakwood advantages, to test Mendel's Principles by actual experiment.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

A MEETING of this Society was held at the Coal Exchange, Manchester, on February 5th, when a good show of Orchids was seen.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), received a Silver Medal for a fine group of Cypripediums.

S. Gratrix, Esq., West Point, Whalley Range (gr. Mr. Cypher), was awarded a Bronze Medal for a good group, containing Dendrobium × Apollo album, Odontoglossum × Harryano-crispum West Point var., O. crispum West Point variety, a large round flower destitute of markings; and Cypripedium × Rex (Harrisianum × villosum), a very large form, the two latter each receiving an Award of Merit.

Mrs. Tunstill, Brierfield, Burnley (gr. Mr. Balmforth), gained a First-class Certificate for Cypripedium × Priam (insigne Chantini × Niobe superbum), a magnificent hybrid, said to be a unique plant.

Mrs. Gratrix, West Point, Whalley Range, showed a good example of Lælio-cattleya × luminosa.

Messrs. J. Cypher & Sons, Cheltenham, received a Silver Medal for a fine group, consisting chiefly of Dendrobiums, and including D. × Leechianum giganteum, and D. × Ainsworthii Cypher's var., both of which received Awards of Merit, some well-flowered plants of Sophronitis grandiflora being also noteworthy.

Messrs. Charlesworth & Co., Heaton, Bradford, were awarded a Bronze Medal for a good group of Orchids, including the fine Cattleya × Adonis (Mossiæ × gigas), which received a First-class Certificate, and Cypripedium × resplendens (Cleopatra × Lawrenceanum), to which an Award of Merit was given.

Messrs. J. Cowan & Co., Gateacre, staged a fine group of Lycaste Skinneri, for which a Bronze Medal was awarded. A First-class Certificate was given to Stanhopea Amesiana.

Messrs. Sander & Sons, St. Albans, exhibited the handsome and richly coloured Lælio-cattleya × bletchleyensis var. excellens, which received an Award of Merit.

Mr. W. Holmes, Egerton Nursery, Timperley, received an Award of Merit for a very handsome variety of Cattleya Trianæ called "Our Queen."

Messrs. A. J. Keeling & Sons, Westgate Hill, Bradford, showed Cypripedium × Pollettianum and C. × Charlesianum.

Mr. J. Robson, Altrincham, exhibited fine examples of Odontoglossum × Adrianæ and O. × Harryano-crispum.

AT the meeting held on February 19th, a very good display of Orchids was again seen.

J. Leemann, Esq., Heaton Mersey (gr. Mr. Edge), was awarded a Silver

Medal for a group of four very fine Odontoglossums, O crispum Marie (F.C.C.), O. c. Mrs. Peeters (A.M.), O. c. François (A.M.), and O. c. Ella, all four being magnificent flowers.

W. Duckworth, Esq., Shawe Hall, Flixton, received a Silver Medal for a fine group of about thirty Dendrobiums.

S. Gratrix, Esq., Whalley Range (gr. Mr. Cypher), showed Lælio-cattleya × Jeanette (L. c. × Gottoiana × C. labiata), a fine very dark hybrid (F.C.), and Odontoglossum crispum var. Gipsy Queen (A.M.).

W. Thompson, Esq., Stone (gr. M. Stevens), obtained a Bronze Medal for a small group of Odontoglossums, including a very fine example of O. Pescatorei bearing about 400 flowers on eight spikes, O. × aspersum, O. × Wilckeanum, O. × Adrianæ var. Starlight, and O. × Harryano-crispum roseum, the latter receiving an Award of Merit.

R. Le Doux, Esq., Marlfield, West Derby (gr. Mr. Davenport), gained an Award of Merit for Masdevallia × Rushtoni (ignea × racemosa).

E. O. Schneider, Esq., Whalley Range (gr. Mr. Hunt), showed a good plant of Dendrobium × Schneiderianum, and other well-grown Dendrobiums, a fine plant of D. nobile receiving a Cultural Certificate.

Messrs. J. Cypher & Sons were awarded a Silver Medal for a fine group, containing Dendrobium × Apollo magnificum (A.M.), D. nobile rotundiflorum (A.M.), D. aureum Ellerianum, D. × Cybele nobilior, Cattleya Trianæ Arle Court var., Miltonia × Roezlii, and other plants.

Mr. J. Robson, Altrincham, secured a Silver Medal with a fine group containing some good plants of Cattleya Trianæ, Cypripedium × Euryades Robson's variety (A.M), and some good Odontoglossums, O. crispum compactum receiving an Award of Merit.

Messrs. Sander & Sons, St. Albans, also received a Silver Medal for a fine group, containing Phaius × Marthæ, P. × M. superbus, P. × M. aureus, P. × Normani niger, P. × N. striatus, and the fine Odontoglossum × Wilckeanum var. Fascinator.

Mr. S. Allen, Sale, secured a Bronze Medal with a group of Dendrobium Wardianum, Cypripedium villosum, Cœlogyne cristata, and others.

Messrs. J. Cowan & Co., Gateacre, staged a good group, for which a Bronze Medal was awarded, a fine Dendrobium Wardianum aureum, and some good Odontoglossums, being noteworthy.

M. A. A. Peeters, Brussels, also received a Bronze Medal for some Cypripedium hybrids, two forms of C. × aureum being very good.

Messrs. Stanley, Ashton & Co., Southgate, received a Vote of Thanks for a very fine collection of cut flowers of Odontoglossums, O. × Wilckeanum southgatense being very prominent.

Messrs. A. J. Keeling & Sons, Westgate Hill, Bradford, showed Cypripedium × Mons. de Curte Keeling's variety.

ODONTOGLOSSUM × DENISONÆ.

The annexed figure represents a fine specimen of Odontoglossum × Denisonæ (Wilckeanum), which flowered in the collection of the Right Hon. J. Chamberlain, M.P., Highbury, Birmingham, a few weeks ago. It is reproduced from a photograph kindly sent by Mr. J. Mackay.

Fig. 20. Odontoglossum × Denisonæ.

The inflorescence, it will be seen, had five side branches, and bore an aggregate of forty-two flowers. It is a well-grown example of this beautiful plant, and the illustration may be left to speak for itself. The history of this very polymorphic natural hybrid was given at pp. 201-206 of our first volume.

CALANTHE REGNIERI.

OF the deciduous section of Calanthes, this species and its varieties may be considered as amongst the most useful stove plants which bloom at this time of year. The flowers commence to open about the middle of January, and last well into March. The spikes of bloom, from strong vigorous pseudobulbs, are often seen from four to six feet in length, and are exceedingly effective for decorative purposes generally; especially so when stood upon the floor of the Orchid house, and arranged amongst Palms, Ferns, Cyperus, &c. The spikes when cut and placed in water last for three or four weeks in a cool room. The formation of the inflorescence as well as the time of flowering marks them out as distinct from those of the C. vestita section.

The typical C. Regnieri, from Cochin China, produces flowers with white sepals and petals, the lip having varying tints of rose pink. C. R. Sanderiana is probably the best of this section; it has large white flowers, with a dark crimson blotch on the lip. C. R. Williamsii is a pretty variety; its petals are white with a rose-coloured border; the sepals white, sometimes shaded with pink, and the lip rosy crimson. C. R. Stevensii has also white sepals and petals, with a pretty light rose-coloured lip. Unfortunately this last named variety is unsuitable to grow in the neighbourhood of London, as the blooms are quickly destroyed in foggy weather.

When the flowers commence to open, water at the root should be discontinued altogether, and the plants should be stood in the driest position available in the house where they have been grown. After the spikes are cut, still keep the soil dry. The plants will begin to grow again in April, when they should be shaken out and repotted. They prefer an open mixture of three parts good fibrous loam, one part peat, with a small addition of leaf soil and coarse silver sand: and though drainage must be liberally afforded, the potting is like that accorded to ordinary plants. Very little water is needed until growth is well advanced, and the roots have a firm hold of the compost, and are seen clinging round the sides of the pots.

I have not noticed that these plants are much troubled with insect pests during their season of growth, but when they are in a dormant state mealy bug is often to be found concealed about the pseudobulbs, and should be thoroughly eradicated by brush and sponge. No Amateur need fail in growing and blooming these Calanthes, even if he has no special house for Orchids, an ordinary plant stove answering all requirements.

The dwarf-flowering C. rubens from Malaya, and its pure white variety alba, are also in bloom at this season. Their short spikes and small flowers form a striking contrast to their companions of the C. Regnieri group, but

they are very pretty, and if about two dozen or more plants were arranged, with small ferns, upon the stage, no lover of Orchidaceous plants would fail to appreciate them.

Burford. W. H. W.

ORCHIDS IN SEASON.

Flowers of several very beautiful Paphiopedilums are sent from the collection of the late R. Tunstill Esq., Monkholme, Burnley, by Mr. W. Balmforth. P. × Priam is a most beautiful hybrid derived from P. insigne Chantini ♀ and P. × Niobe ♂. Mr. Balmforth states the plant was exhibited by Messrs. Veitch at the Drill Hall, in November, 1900, gaining a First-class Certificate, but has not flowered again until this year, when it produced three fine flowers, and gained a First-class Certificate at Manchester on February 5th. The dorsal sepal is most beautifully speckled with purple. P. × aureum Surprise is a beautiful unspotted flower of a soft greenish yellow with the apex of the dorsal sepal white. P. × Leeanum Clinkaberryanum is a well-known finely spotted form. The well-known P. × Madame Jules Hye is another very handsome hybrid in which the Spicerianum character shows to great advantage. All are splendidly grown.

Several fine forms are sent from the collection of Reginald Young, Esq., Sefton Park, Liverpool. P. × Rhodopsis was derived from P. Charlesworthii and P. × enfieldense, and the colour of the flower is a pretty combination of rose and brown, with a rosy purple staminode. A second was purchased as a hybrid between P. Charlesworthii and P. superbiens, and has much of the same general character, with a porcelain-white crescent-shaped staminode.

Flowers of several interesting Orchids are sent from the collection of E. J. Lovell, Esq., Oakhurst, Oxted, by Mr. Jones. Four fine flowers of Lycaste Skinneri show some of the variation to which the species is subject, and one pretty form has the crest of the lip bright yellow, and a white area round it, while the rest of the lip is purple, also the petals. Odontoglossums include O. triumphans, O. gloriosum, a very good O. Rossii, O. crispum, spotted only on the lip and sepals, and a form of O. × Adrianæ heavily marked with dark crimson spots. The others are Dendrobium crassinode, with large purple tips to the sepals, D. Wardianum, D. nobile, the rich orange Lælia harpophylla, and a very fine Cattleya Loddigesii.

Several very pretty Dendrobiums are sent from the collection of the Right Hon. Joseph Chamberlain, M.P., by Mr. Mackay. They include three richly coloured forms of D. × Rubens, D. × melanodiscus

varieties Dido, Luna, and pallens, and D. × chlorostele var. xanthrocentron. Lastly may be mentioned a pretty hybrid from D. × Rubens × aureum, which so closely resembles D. Ainsworthii as not to be worth a separate name. And it only differs in having one-eighth more D. aureum in its composition. The flowers are creamy white, with the usual dark maroon feathered disc.

A very interesting selection is sent from the collection of J. E. Vanner, Esq., Camden Wood, Chislehurst, by Mr. Robbins. It includes a fine form of Lælia Jongheana, a richly coloured Cattleya Trianæ called Robert Measures, having a dark purple band on the petals, the fragrant little Dendrobium × endocharis, Phragmipedilum pulchellum, and several good Paphiopedilums. P. × Vanneri (Calypso × Chamberlainianum) is much finer than the one described at page 190 of our ninth volume, and is from another seedling. The others are, the richly-coloured P. × Creon, a fine example of P. × Harrisianum superbum, P. × Lathamianum, P. × Pitcherianum Williams' var, an extremely fine thing, P. × Madiotianum, P. × Calypso Cooksoni, and three forms of the seedling mentioned at page 124 of our last volume as of uncertain parentage, but which we now think are forms of P. × Menelik (P. × Calypso × Boxallii). The seed parent is known, for a plant of P. × Calypso (Spicerianum × Boxallii) was purchased when bearing the capsule from which they were raised, but the pollen parent was recorded as P. bellatulum. But this is clearly erroneous. The flowers are three-fourths Boxallii in character, and the dorsal sepal handsomely spotted.

Paphiopedilum × Leeanum westonense is a beautiful variety from the collection of W. M. Appleton, Esq., of Weston-super-Mare, in which the spots on the dorsal sepal are large and regularly arranged, in which respect it approaches P. × L. Albertianum. A curious hybrid with the record P. superbiens × Godefroyæ leucochilum is also sent, which much resembles P. niveum somewhat enlarged and more spotted. There is said to be no trace of P. superbiens in the plant. Perhaps a solution of the mystery will be possible hereafter.

A very good form of Paphiopedilum exul is sent from the collection of Mrs. Grogan, Slaney Park, Baltinglass, Co. Wicklow, the ground colour of the flower being more yellow than usual, and the disc of the dorsal sepal and base of the petals very prettily spotted. Very good of Dendrobium × Ainsworthii and D. × A. roseum are also sent, with two pretty hybrids raised in the collection. The first, from D. primulinum × Ainsworthii roseum, must be referred to D. × Achilles, and most resembles the latter in colour, but the disc is very large and dark, and the shape exceptionally round and good. The other is from D. Findlayanum × Ainsworthii roseum, and must be referred to D. × melanodiscus.

A very pretty form of Cattleya Trianæ is sent from the collection of the Rev. E. Baddeley, Long Marston Rectory, York. It is of excellent shape, and the sepals and petals are of a pretty shade of rose-pink, while the lip is bright rose-coloured almost throughout, for the yellow disc is completely broken up by a series of radiating rosy lines.

Flowers of the handsome Odontoglossum crispum Lindeni are sent from the collection of Richard Ashworth, Esq., Ashlands, Newchurch, near Manchester. The shape is good, and the ground colour nearly white, while the markings are very heavy, and of a peculiar shade of red-brown. On the sepals they are aggregated into two very broad irregular bands, and on the petals into one very large zone-like blotch, with a few small outlying spots. On the lip there is one large blotch in front of the crest, and a pair on either side. It is certainly a very striking form.

Another seedling of Dendrobium × Ellisii has bloomed, a flower having been sent from the collection of the Right Hon. J. Chamberlain, M.P. Its parentage is given as D. Hildebrandii × nobile albiflorum, and the flower has evidently not yet reached its full development.

Flowers of the pretty Cattleya Trianæ "Mrs. T. Miller Crook," which was exhibited at the R.H.S. meeting on February 24th, are sent by Messrs. Hugh Low & Co., of Bush Hill Park. They are light blush in colour, with the front half of the lip rose-purple, which extends backwards in lines into the yellow disc.

A fine form of Lælio-cattleya × bella is sent from the collection of Sir James Miller, Bart., Manderston, Duns, N.B., by Mr. Hamilton: also a six-flowered inflorescence of a hybrid between Lælia cinnabarina ♀ and Cattleya amethystoglossa ♂. It most resembles the former in shape, but the segments are suffused with rose, and the front lobe of the lip is deep purple crimson.

ODONTOGLOSSUM CRISPUM VARIETIES.

WE have received three very handsome varieties of Odontoglossum crispum from the collection of J. Leemann, Esq., West Bank House, Heaton Mersey (gr. Mr. Edge), "for description and registration."

O. c. MRS. F. PEETERS was exhibited at the Temple Show, 1900, by M. A. A. Peeters, of Brussels, and was briefly recorded at page 176 of our eighth volume. It has broad, undulate sepals and petals, the latter being slightly toothed, and the ground colour is prettily suffused with rose-pink. The blotches are light claret-purple in colour, rather large, and more or less irregularly confluent, with a zone-like arrangement of smaller spots on the petals. The spots on the lip are small, and cinnamon-brown in colour.

O. c. MARIÆ received a First-class Certificate from the Manchester Orchid Society on February 17th last. It has very broad white segments with just the faintest tinge of blush on the lateral sepals. The spots are deep red-brown colour, those on the sepals confluent into two and in the petals into one irregular blotch, with a few detached spots. The spots on the lip are smaller but similar in colour.

O. c. MARIE CORELLI is dedicated by special permission to the lady whose name it bears. The segments are broad, and white, with just a faint tinge of blush in the sepals, and the petals are slightly toothed. The blotches are purple, large, aggregated and more or less confluent in the centre of the segments, and thus forming a zone. There is one large blotch of similar colour on the lip in front of the crest, and a few smaller ones at the sides. It is very handsome.

All three forms are extremely beautiful, but how far they are distinct from the multitude of others previously described it is impossible to say. It was recently asserted, by Mr. Crawshay, that of the numerous blotched forms of O. crispum "there are no two in cultivation that are identical," and in the sense that no two individuals are ever exactly alike it may be true, but scarcely in any wider sense. We have repeatedly observed that the markings are not always identical in different flowers on the same inflorescence, and they sometimes vary from year to year, according to the vigour of the plant. It would be extremely instructive if all the named forms could be compared side by side, but this is manifestly impossible, and descriptions fail to convey a complete idea of their peculiarities. Photography and accurately coloured drawings can alone effect this, and when the two can be combined, as we believe they will be in the new three-colour process, we hope that some of the difficulties of adequately dealing with the "variety question" will be removed.

DENDROBIUM AUREUM CINNAMOMEUM.—Another plant of this distinct and very pretty Dendrobium has appeared, a flower having been sent by Mr. T. Townsend, F.R.H.S., of Glasgow. It differs from the type in having the flower suffused throughout with light copper colour, though it agrees in all other respects. Mr. Townsend remarks that it came in an importation of the type—a flower of which is also sent for comparison—and that it was the only plant showing this particular colour. All the flowers were alike. A plant of this variety flowered in the collection of Fred. Hardy, Esq., of Ashton-on-Mersey, in December, 1897, and was noted at page 3 of our sixth volume.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, during March, on the 10th and 24th respectively, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on March 5th and 19th. The Orchid Committee meets at 11.30 a.m., and the exhibits are open to inspection from 12.30 to 3 p.m.

A flower of a beautiful hybrid between Paphiopedilum × nitens and P. Chamberlainianum is sent by Mrs. Ross, of Florence, which must rank as a variety of P. × edgbastonense, which was raised in the Birmingham Botanic Garden. It most resembles the latter parent in general character, but the dorsal sepal is handsomely spotted and in other respects the influence of P. × nitens is apparent.

A handsome Lælio-cattleya is sent from the collection of Captain C. C. Hurst, Burbage, Hinckley, which was purchased as a seedling from the Winn collection. The parentage is doubtful, but we suspect it was Lælia cinnabarina and some Cattleya of the labiata group, possibly C. Warscewiczii, which would make it a form of L.-c. × Cappei. The strongly corrugated lip recalls L. cinnabarina, and the throat is golden yellow, with the apex and margin deep maroon-crimson, while the sepals and petals are deep golden yellow. The flower measures 4½ inches across, and the petals are 1⅛ inches broad.

A fine hybrid from Paphiopedilum barbatum ♀ and P. × Charles Canham ♂, now flowering for the second time, has been sent from the collection of Mrs. Hollond, Wonham, Bampton, N. Devon, by Mr. Austin. It is a form of P. × Eros, raised in the collection of A. W. Wills, Esq., of Birmingham (*O. R.*, vi, p. 335), and is much like the original form.

We have received a copy of *One and All Gardening* for 1903, edited by Edward Owen Greening, containing articles on various branches of Horticulture, and profusely illustrated, but on this occasion it contains nothing about Orchids. It may be remembered that the previous annua contained an article on Greenhouse Orchids, which was reviewed, and two of the blocks reproduced, in our last volume (pp. 136, 137).

A remarkable flower of Dendrobium Wardianum is sent from the collection of Sir John Edwards-Moss, Bart., through Messrs. Sander & Sons. It measures over five inches across, and the orange yellow disc

occupies the whole extent of the lip except the apical fourth. The blotches are also very large, and surrounded by some crimson streaks. It is suggested that it may be a freak, but the point can hardly be settled until it flowers again.

ORCHID PORTRAITS.

CALADENIA CARNEA ALBA.—*Garden*, 1903, i, p. 99, with fig.

CYPRIPEDIUM × J. WILSON POTTER.—*Gard. Chron.*, 1903, i, p. 83, fig. 36; *Journ. Hort.*, 1903, i, p. 177, with fig.

CYPRIPEDIUM × ŒNANTHUM SUPERBUM.—*Journ. Hort.*, 1903, i, p. 135, with fig.

DISA GRANDIFLORA.—*Rev. Hort.*, 1903, p. 84, fig. 31, and plate.

DISA × KEWENSIS.—*Gartenflora*, 1903, p. 57, t, 1510.

HABENARIA CARNEA.—*Amer. Gard.*, 1903, p. 105, fig. 20.

LÆLIA ANCEPS SANDERIANA.—*Garden*, 1903, i, p. 113, with fig.

LYCASTE SKINNERI (with branched pseudobulb).—*Gard. Chron.*, 1903, i, p. 91, fig. 39.

ODONTOGLOSSUM × BRADSHAWLE.—*Gard. Chron.*, 1903, i, p. 82, fig. 35; *Journ. Hort.*, 1903, i, p. 113, with fig.; *Gard. Mag.*, 1903, pp. 86, 87, with fig.

ODONTOGLOSSUM CRISPUM COOKSONLE.—*Gard. Chron.*, 1903, i, pp. 108, 109, fig. 47; *Gard. Mag.*, 1903, p. 120, with fig.; *Garden*, 1903, i, p. 133, with fig.; *Journ. Hort.*, 1903, i, p. 157, with fig.

ODONTOGLOSSUM × WILCKEANUM VAR. ROTHSCHILDIANUM.—*Journ. Hort.*, 1903, p. 35, with fig.

CORRESPONDENCE.

(Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be stated; and, for without these details we are not always able to deal with them satisfactorily.)

S.A. Polystachya Ottonis, and, we think, Paphiopedilum × Orpheus, a hybrid from P. venustum and P. callosum.

J.M. Possibly both are forms of Odontoglossum × Demosa, but at present very small and quite undeveloped.

J.W.A. Brassavola retusa.

F.A.R. It is now fully recognised that a hybrid from a reversed cross is only a form of the original. It may or may not differ, and in the former case can be distinguished by the addition of a varietal name.

W.B. Epidendrum dichromum, a Brazilian species.

The continuation of our article on Orchid Hybridisation, and two or three other matters, are unavoidably postponed.

CATALOGUE RECEIVED. We have received the Catalogue of Orchids issued by Messrs. A. J. Keeling & sons, The Grange Nurseries, Wempare Hill, near Bradford, containing a good selection of the popular species, varieties and hybrids of Orchids.

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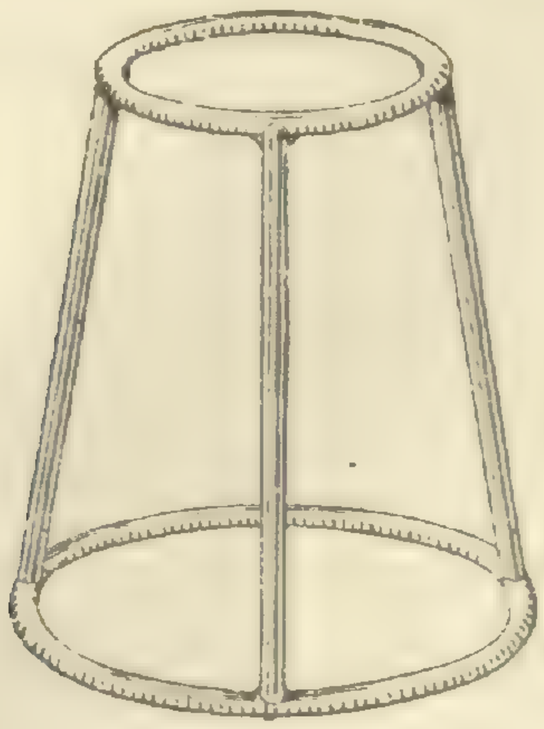

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The next MEETINGS of the COMMITTEE for the purpose of adjudicating upon the Orchids submitted will be held on March 5th and 19th, 1903, at 11.30 o'clock prompt. Open to Members from 12.30 to 3 o'clock p.m.

P. WEATHERS, Hon. Sec.,
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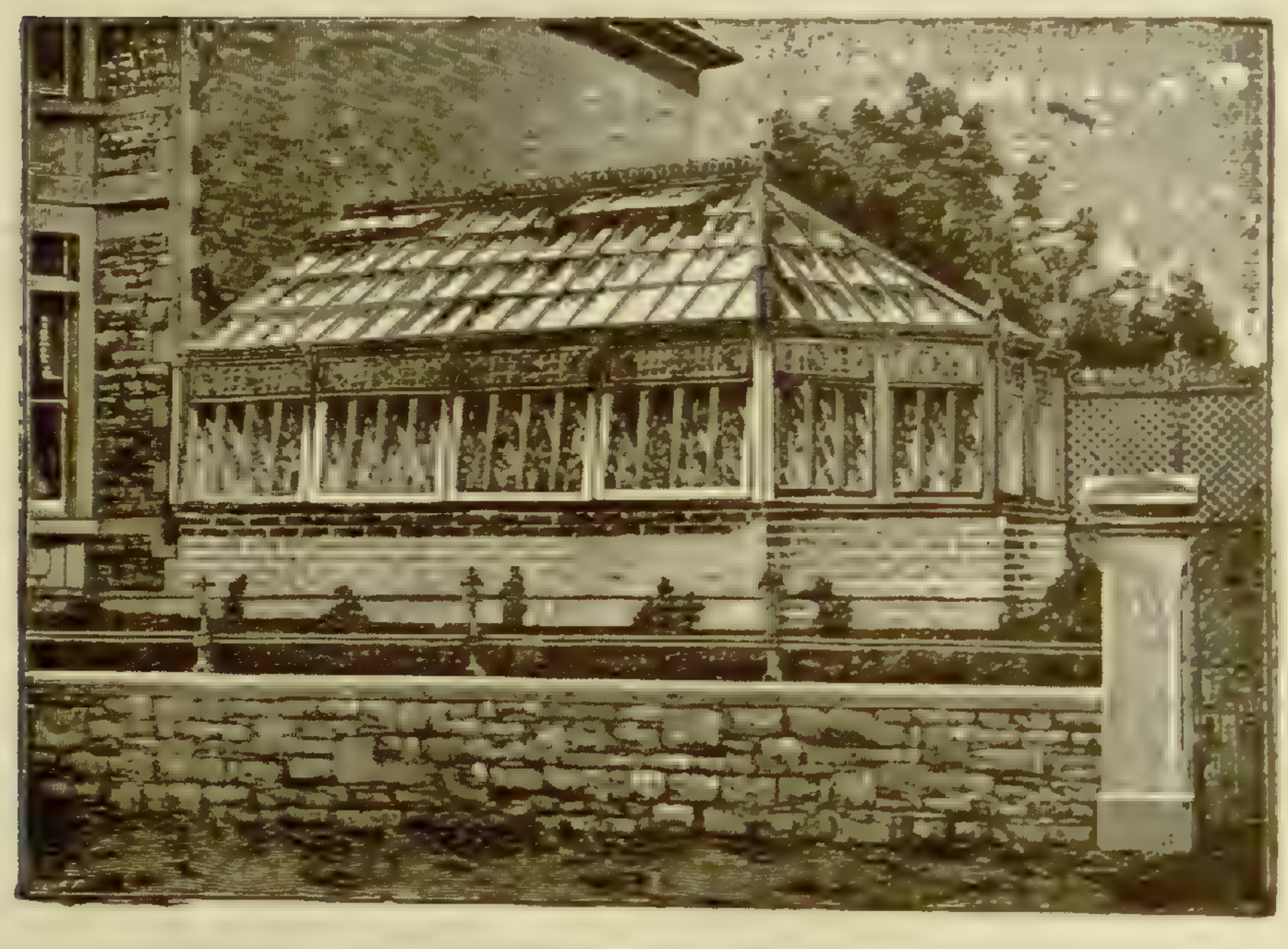

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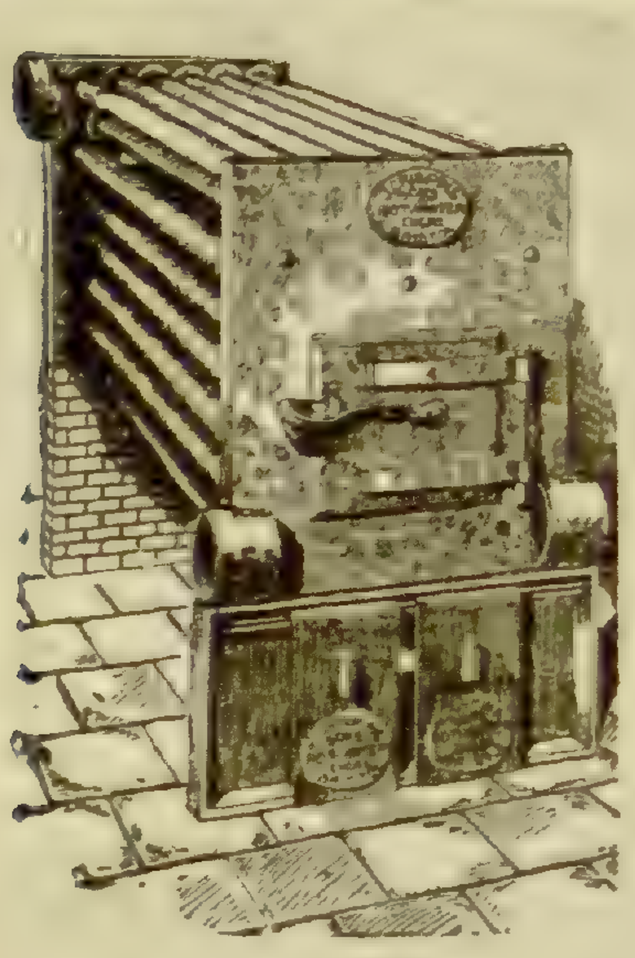

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THE ORCHID REVIEW:

An Illustrated Monthly Journal of Orchidology.

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THE ORCHID REVIEW.

VOL. XI.] *APRIL*, 1903. [No. 124.

MENDEL'S PRINCIPLES APPLIED TO ORCHID HYBRIDS.

(*Continued from page 74.*)

LAST month we referred to a very interesting paper with the above title, by Captain C. C. Hurst, F.L.S. (*Journ. R.H.S.*, xxvii, pp. 614-624), and reproduced the remarkable series of varieties of Paphiopedilum × Hera with which it was illustrated (pp. 71-74, figs. 16-18), but a summary of the conclusions arrived at had to be deferred till the present issue.

At the outset Mendel's theory is briefly described, as follows:—"That determinants of each single character in the germ cells of hybrids (both pollen and egg cells) are pure and not hybrid in their nature: representing alternatively the respective character either of the one parent or the other of the hybrid, but not both."

An illustration is drawn from Paphiopedilum × Leeanum, produced by intercrossing P. Spicerianum and P. insigne:—"According to Mendel's theory, the germ cells of P. × Leeanum will not contain hybrid determinants for any single character, but one germ cell will contain determinants of pure P. Spicerianum for that character, while another germ cell will contain determinants of pure P. insigne for that same character; the process being apparently according to the law of chance. Of course, when all the single characters are taken into account together, each germ cell would naturally contain determinants of both P. Spicerianum and P. insigne, but according to Mendel's theory there would be no determinants of the hybrid P. × Leeanum itself."

Mendel's theory of the purity of the determinants can only be tested by experiment, either (*a*) by self-fertilisation of the first crosses, or (*b*) by re-crossing the latter with one or the other of their own parents, or (*c*) with another species. All three experiments have been made, but only the results of the third experiment (P. × Leeanum × Boxallii) are at present available. The details and figures were given last month, and now we must briefly point out the conclusions arrived at.

The analysis made is confined to the colour of the dorsal sepal, this apparently being the most conspicuous character, and probably one of the most useful from a horticultural standpoint. This was at first considered to be a single Mendelian character, but afterwards regarded as a

composite one, made up of three distinct characters, namely, (1) the ground colour; (2) the various markings upon the ground colour; and (3) the median band, bar or stripe. These three characters are considered to be inherited independently of each other, with hardly any correlation, and the different combinations of these characters serve to make up the colour of the dorsal sepal. It is further pointed out that in order to afford a fair test of Mendel's principles the characters must not only be *single*, but also *differential* (that is found in only one of the species under investigation), and *constant*. It is considered that these conditions are fulfilled in the case of a cross between P. × Leeanum and Boxallii.

Now, if Mendel's theory as to the purity of the single character determinants in the germ cells of hybrids be correct, the hybrid P. × Leeanum contains determinants which are either pure Spicerianum or pure insigne (these are termed S and I for convenience and brevity), and the union with P. Boxallii (termed B) will result in B S or B I (on the average in equal numbers, according to the law of chance), but not in B S I, or even in S I.

A table is given in which the 49 hybrids which have hitherto flowered are analysed, and the results are summarised as follows :—Ground colour of dorsal sepal, 20 B S, 29 B I; markings on the ground colour, 26 B S, 23 B I; and, Median Band, 30 B S, 19 B I; or a total, when the single characters are added together, of 76 B S, and 71 B I; which, considering the small numbers used, is claimed as a fair approximation to the equality which Mendel's theory presumes.

As thirty of the 49 hybrids are figured, readers may compare for themselves the analyses with the figures, and here we may point out that nine of the thirty forms figured are given as B S only in all three characters (Nos. 3, 4, 5, 23, 24, 32, 33, 42 and 43), and six as B I only (Nos. 6, 22, 40, 41, 48, and 49). That is to say there are nine forms which in the three characters analysed are identical with P. × Calypso (Boxallii × Spicerianum), and six with P. × Schlesingerianum (Boxallii × insigne), which collateral hybrids were available for comparison when the analyses were made. As to whether these forms are really pure, the author remarks that the biologist would further require them to be "self-fertilised for several generations to see if they remain pure B S and B I in those characters, as they appear to be on the surface." It is interesting to find that the experiment is being followed up.

The author summarises his conclusions as follows :—"While from the biological point of view, we cannot yet say with certainty that Mendel's principles are proved beyond doubt, yet so far as the matter has been carefully tested in many different genera, and by several independent observers in several countries, there can be no doubt that there is a substantial agreement with the principles laid down by Mendel."

In conclusion, it should be added that the author points out that in his former paper he took the whole colour of the dorsal sepal as a single character in the Mendelian sense, hence the different conclusions arrived at.

In our remarks last month a mistake was made with respect to the variety Hurstii. It is number 8 in the group figured on page 71, not "6" nor "5," as misprinted on p. 74. It is figured in *Cogn. Dict. Ic. Orch.* as Cypripedium × Adrastus var. Hurstii.

A FEW SELECT EPIDENDRUMS.

THE genus Epidendrum is one of the most extensive as regards species in the Orchid family, but the greater number bear insignificant flowers, deficient in colour, and these are chiefly of interest to botanists. The fragrance, however, of some of the less attractive species renders them well worthy of cultivation, and many of them remain in flower for a considerable time, some even lasting in perfection for several months.

At the present time in the Intermediate house at Burford, E. odoratissimum, E. fragrans, and E. ionosmum are in bloom, and the delicious odour emitted from them pervades the whole house, and is especially delightful to visitors.

All the species are from tropical and subtropical America, and most of them do well in the house in which Cattleyas and Lælias are grown. Or they may with advantage be placed with such species as Sobralias, Miltonias, and the cooler-growing Cypripediums.

They are evergreen, and should be afforded a liberal supply of water at their roots during their growing period, and a restricted supply during the resting season. Nearly all the species succeed best when potted in well-drained pots, in a mixture of fibrous peat, leaf soil, and sphagnum moss in about equal parts, the compost being well mixed together prior to use. A few of the most acceptable varieties that are not only showy, but extremely useful in many ways may be enumerated.

Of these E. radicans (rhizophorum) is a general favourite, its strong growths producing panicles of bright orange-scarlet flowers, which open in succession for a period of three or four months. Owing to its scandent habit, the stems require some amount of training, and these should be securely tied to neat sticks while they continue growing. Plants of this species delight in having their shoots and aërial roots well syringed daily during warm sunny weather.

E. Schomburgkii has panicles of bright vermilion-red flowers, but the plant is dwarfer in habit than E. radicans. The bright yellow flowers of E. xanthinum are borne in terminal clusters, from stems which often attain

to the height of three or four feet, and are most effective. E. aurantiacum is Cattleya-like in growth, and has orange-coloured blossoms. E. paniculatum was one of the first epiphytal Orchids known to science, and its fragrant flowers are variable in colour, usually pale rose or lilac, and produced in gracefully arched panicles, which are always attractive and interesting. E. ellipticum (crassifolium) is a free-growing tall variety, having clusters of rose-coloured fragrant flowers, which are very useful for cutting.

The blossoms of E. cinnabarinum, a similar habited kind, are cinnabar-red, while those of the well-known E. prismatocarpum are creamy white spotted with black, and the front of the lip is purple. The latter is a fine species for exhibition purposes. E. Stamfordianum is a very handsome species, the colour of the flowers being variable; greenish yellow spotted with brown; yellow spotted with red; buff yellow spotted with purple, &c. The inflorescence is produced from the base of the stem, very similar to that of Cattleya Walkeriana.

An interesting Epidendrum is E. Parkinsonianum. It has very small bulbs, and large fleshy pendulous leaves. The single flowers are produced from the base of the leaves, and have yellowish green sepals and petals, with a white lip, and, like those of the pure white E. ciliare, they emit a powerful sweet perfume at night. This variety, owing to its pendulous habit, should be fastened to a teak raft or block of dried apple wood, and grown in a sunny position in the Warm house. The raft should be dipped in water every evening at sunset. E. falcatum has white flowers, and requires similar treatment. Among the dwarf growing species now in flower is E. Endresii, a lovely little gem. The flowers are produced on short pedicels, pure white, with a few violet spots on the lip, and for a gentleman's button-hole flower there are few Orchids to equal it. The plant should be grown in a damp position in the house, as the underside of the foliage is an attraction to red spider, which, if not kept in check, will quickly cause it to deteriorate. A popular and well-known species is E. vitellinum, its bright cinnabar-red flowers lasting a long time in perfection. The Cool house is the most suitable one for it. It is about sixty-four years ago that the first plant of E. vitellinum flowered in this country. E. Frederici-Gulielmi is a very handsome species, but unfortunately plants are not often met with in our Orchid collections at the present time. E. Wallisii is a plant of great merit, its canary yellow flowers, with blackish purple spots, always being admired, and a strong, well-grown plant is seldom out of bloom. The rare E. chioneum (Claesianum), with its nodding clusters of fragrant white flowers, is a pretty and useful addition to the genus. It prefers Cool house treatment, and a light but not sunny position.

Burford

W.H.W.

ORCHIDS FROM PENARTH.

The collection of J. J. Neale, Esq., of Penarth, Glam., is probably one of the largest and most representative in South Wales, as it contains considerably over 400 distinct species, and an aggregate of about 2,000 plants, most of the leading genera being represented. Mr. Neale, who is a thorough all-round naturalist, began Orchid growing on a small scale, attending to the plants himself, but owing to the growth of the collection, and his business at Cardiff, he soon found it necessary to find some assistance, and consequently he employed Mr. E. W. Davy, who is equally enthusiastic of his charge, and very successful, as may be seen by a series of beautiful flowers received.

Dendrobium is represented by five handsome species, including four beautiful varieties of D. nobile and two of D. Wardianum, the others being D. primulinum, a beautiful inflorescence of D. aggregatum, with fourteen flowers, and a fine bloom of D. infundibulum, the rich orange markings on the disc showing off to great advantage against the pure white ground colour.

Cattleya is represented by a fine example of the beautiful C. Trianæ delicata, and two good coloured forms, and Lælia by L. harpophylla and two very fine flowers of L. Jongheana, the lighter of the two being seven inches across. Other representatives of this group are the brilliant little Sophronitis grandiflora, the very fragrant E. odoratissimum, and the pretty little E. polybulbon, which is not often met with in collections. Other botanical Orchids are an inflorescence of the remarkable Scaphosepalum gibberosum, the curious little Pleurothallis tridentata, and flowers of Masdevallia triangularis. It is pleasing to find another collection in which botanical Orchids are represented.

Odontoglossums are represented by the fragrant little O. pulchellum, a beautiful inflorescence of O. Rossii rubescens with five flowers, a quite unusual number for this plant, a clear white form of O. crispum, O. Lindleyanum, O. constrictum, and two forms of O. triumphans. Oncidium Warscewiczii is a deep yellow species not often met with in collections, and a fine flower of O. Papilio is taken from a plant that has been blooming continuously for three years, and the spike does not yet show signs of going off. The two remaining plants are a good spike of Cymbidium pendulum, and flowers of the yellow Maxillaria variabilis var. unipunctata.

Artificial hybrids have not largely appealed to Mr. Neale, and at present there are but ten Cypripedes and one Dendrobium of this kind. But a commencement has been made, and the first of a number of interesting crosses commenced germinating very freely a month ago. This is Lælia Boothiana ♀ × L. tenebrosa ♂, and we hope to see the flowers in due

time. Some other interesting crosses have been sown, and a number of maturing capsules promise further results. These include many Odontoglossums, and one cross, O. pulchellum × cirrhosum, of which the seed has just been sown, was made with the view of enhancing the perfume, so that it will be interesting to watch the result, if seedlings are obtained.

Leaf-compost was tried on a small scale last season, and the results were satisfactory in every case, so that this year the practice is being extended. Mr. Davy uses one-half oak leaves of the previous year (not mould), rubbing them through a half-inch sieve, the other half consisting of good fibrous peat, sphagnum, and silver sand. Loam is substituted for peat in the case of Cypripedes, Cymbidiums, Lycastes, and Cœlogynes. A spout can is not used for watering, it being found that moistening the surface with a fine rose and damping between the pots is sufficient. Perforated pots and pans are considered the best for all plants in this compost.

As in all collections, certain subjects prove refractory, chiefly, no doubt, through the proper conditions not having been supplied, and it is thought that a little space might be devoted to such subjects, especially when a successful method of treatment has been discovered. Some of our readers may have useful experience of this kind to communicate.

PAPHIOPEDILUM FAIRRIEANUM.

WITH reference to the question respecting Paphiopedilum Fairrieanum, raised at page 66, it may be interesting to record that this little gem flowered in the collection of Mr. R. H. Measures, The Woodlands, Streatham, in 1890. I visited that collection on November 8th of that year, and made a drawing of the entire plant, which I still have in my sketch book. There were three distinct growths and seven strong healthy leaves on the plant, which was grown in a large thumb pot. Only one flower was produced, but it was of a fairly good size, being just three inches from the tip of the upper sepal to the point of the slipper, while the width was 1¾ inches from petal to petal in their natural upturned state. J. WEATHERS.
Isleworth.

At the meeting of the Scientific Committee of the R. H. S. held on February 24th last the following communication was read from Mr. James Douglas :—

CYPRIPEDIUM FAIRRIEANUM HYBRIDS.—Some remarks were made at a recent meeting of the Committee on crossing Cypripediums, and a misunderstanding arose thereupon. It was stated as a fact, and so far as I am aware the statement is correct, that hybrids of C. Fairrieanum will not cross with each other. C. Fairrieanum is a very scarce plant in Britain ; except a small plant in the collection of the President of the R. H. S. I am not

aware of any other. Consequently, hybridists are anxious to obtain seedlings with as much of the character of this scarce variety as possible. They have made many attempts by recrossing the C. Fairrieanum hybrids in existence, but have always failed, although other hybrid Cypripediums will cross with C. Fairrieanum. For instance, C. × œnanthum superbum crossed with C. Fairrieanum produced a very scarce and beautiful variety, C. × Baron Schröder. C. × vexillarium was obtained by crossing C. barbatum with C. Fairrieanum, and this hybrid on being crossed with C. bellatulum produced C. × bellatulo-vexillarium, but vexillarium was the pollen parent. The object of bringing this matter before the Scientific Committee at all would be to ascertain why, if other hybrid Cypripediums will cross with each other, how is it that C. × vexillarium will not cross with C. × Niobe, or why C. × Juno will not cross with C. × Arthurianum, or any other of the numerous ways in which the C. Fairrieanum hybrids may be crossed with each other? The pollen is potent enough if used on other species of Cypripedium.

ORCHIDS OF CHINA.

The last part of the *Journal of the Linnean Society* is largely devoted to an enumeration of the Orchids of China, by Mr. Rolfe. The total number given is 270 species, belonging to 78 genera, and they are divided up among the tribes as follows:—Epidendreæ 99 species, Vandeæ 50 species, Neottieæ 43 species, Ophrydeæ 60 species, and Cypripedieæ 18 species. Twenty-three new species are added—one of which is the type of a new genus, Hancockia, allied to Nephelaphyllum—but some forty others had previously been published in the *Annals of Botany*. The largest genus is Habenaria, with nineteen species, then follows Dendrobium with seventeen, Calanthe and Cypripedium with sixteen each, Platanthera with twelve, Liparis with ten, Cœlogyne, Cymbidium, and Sarcanthus with nine each, &c., while no fewer than thirty-eight genera are only represented by a single species. Among the more interesting novelties may be mentioned Dendrobium bellatulum, a very dwarf, large flowered species of the D. formosum group, now introduced to cultivation by Messrs. Veitch; and D. Hancockii, a beautiful yellow-flowered species, both from Yunnan. It will give some idea of the remarkable character of the Flora of the latter province, when it is mentioned that three North Indian yellow-flowered species have also been found there, namely, D. chrysanthum, D. clavatum, and D. Gibsoni; together with Cymbidium grandiflorum and Paphiopedilum Parishii. And it is particularly noteworthy that the Philippine Phalænopsis Aphrodite also occurs in South Formosa, where it was collected by Dr. Henry.

ORCHIDS IN THE UNITED STATES.

JULIUS ROEHRS, of the Exotic Nurseries, Rutherford, N.J., famous amongst Orchidists all over the States for the quantity and quality of his Orchids, occupies an ideal position for the cultivation of these lovely plants, for elevated only a few feet above the sea level, and situated close to the Hackensack Marshes, the humidity is very great. Seeking out the Nurseries and enquiring for Mr. Roehrs, I briefly stated that I was a Britisher, taking a holiday, and being fond of Orchids would he allow me to look through his houses. Mr. Roehrs, who is a fine type of the American citizen, was kindness itself, and personally showed me through the place, and after spending a very pleasant afternoon gave me permission to come again whenever I liked. It was in these more leisured visits that I had time to notice their methods of culture and the results more closely.

For instance, during one of my visits they were right in the midst of re-potting several hundred Cattleya Mossiæ. The compost consisted solely of black, hard Osmunda fibre, and a little charcoal. The man, securing one of the plants to be re-potted, gathered a handful of the bulbs in one hand, then turning the pot upside down, gave it a smart tap on the bench, and pulled it out of the pot, and with a stick or his fingers poked a lot of the old compost away from the roots; then with his knife or shears he clipt away what he considered dead roots—but which I considered full of vitality—and, placing a handful of crocks at the bottom of a clean pot, fixed the plant in position, and with a blunt stick pushed the new compost in and amongst the roots, and, in less time than it has taken to write this, the plant was re-potted. No moss over the crocks, and no surfacing of moss; indeed, out of all the thousands of Orchids grown on the place not a trace of moss was to be seen, and on enquiring the reason I was informed that it was expensive to get, and that they grew quite as well if not better without it.

Another house, about 100 feet by 15 feet, was literally ablaze with Cattleya Harrisoniæ in bloom, and, as may be imagined where several thousand blooms are open at the same time, it was not difficult to pick out many good varieties; one in particular which Mr. Roehrs, jun., handed to me I have never seen equalled, either before or since. It was perfect in form, and quite four and a half inches across, and I have ever since regretted not bringing it home. Almost without exception the C. Harrisoniæ were grown on rafts or blocks of wood, with very little compost about the roots. All were in the rudest of health, and bulbs over two feet long were quite common. I should mention here that Mr. Roehrs' principal object in growing Orchids is to supply cut flowers for New York market, and noticing several of the C. Harrisoniæ with the new bulb

cut away, I naturally asked the reason, and was told "we get more for the flowers with a long stem." I suggested that it was a good way of ruining the plants, but with a shrug of the shoulders came the reply, "What does that matter if we get more for the flowers than the plant is worth?" And from a commercial point of view I had nothing further to say.

I greatly envied them the free flowering of their Cattleya gigas. The moist atmosphere and clear bright weather just suits this species, and nearly every new growth was bearing three or more of its large brilliantly coloured flowers. The Cattleyas of the labiata section are first favourites

FIG. 21. CATTLEYA LABIATA: AN EIGHT-FLOWERED SPIKE.

here, their lovely flowers finding a ready sale in New York. C. labiata, aurea, Percivaliana, Trianæ, Mendelii, Mossiæ, Gaskelliana, and Warneri, are all grown in their thousands, as well as Lælias anceps, autumnalis, Perrinii, pumila, purpurata, and tenebrosa, the free flowering qualities of which are brought out to a fine degree under the clear sky and moist air of the locality. Cattleya labiata is flowered by the hundred, with six and seven flowers on a spike, and the photograph here reproduced (fig. 21), showing eight flowers on a spike, speaks for itself. This plant is unique and constant in throwing up eight flowers, and has been named labiata var.

Roehrsiana. I believe they have recently flowered a C. Trianæ with seven flowers on one spike!

These results are achieved without the adventitious aid of leaf-mould, it being unknown at the place until about twelve months ago, when Mr. Roehrs was persuaded to try a batch of C. labiata in this compost. At present there is no improvement in the growth, and Mr. Roehrs is reserving his opinion.

There was a fine batch of the rare Epidendrum atropurpureum Randii in flower on one of my visits; fine big bulbs and spikes, with eight to twelve flowers on a spike. This plant is supposed to like a free open compost, and here they had it, nothing but black fibrous peat and lumps of charcoal in equal proportions, and plenty of holes in the compost, and the results were certainly very satisfactory.

At the south end of a long wide corridor, or vestibule, from which the houses open right and left, several thousand Dendrobium Phalænopsis were hanging up to the roof. On the occasion of my last visit the new bulbs were just plumping up, and in the majority of cases had greatly exceeded the length of the imported bulbs, and promised to be a fine show later on. The method of watering was to drench them with the hose pipe as they hung. This was the only way of watering I ever saw on the premises, everything being watered through the hose pipe.

The free flowering Cypripedes and Dendrobes are grown in great quantity, and Mr. Roehrs has flowered several fine yellow varieties from a batch of C. insigne, which find a very ready sale, and possibly we may have a "Sanderæ" in the States under quite a different name?

A strange feature to an Englishman was that in the whole place there was not a hybrid Orchid, every plant belonging to a true species; though I have reason to believe that the raising of hybrids will be attempted in the near future. Miltonia Roezlii does fairly well, but M. vexillaria is only a moderate success, the hot summers requiring great skill and attention to tide the plants safely through. About ten years ago Mr. Roehrs purchased and had sent over from England 2,000 Odontoglossum crispum, but they were a great failure, gradually dwindling away, and so after two seasons, to prevent them dying out altogether, he shipped them back again at about fivepence each, a great loss on the original outlay. Whilst on this subject, I may mention that I visited the collection of a wealthy New York amateur, who had special below-ground pits built for his crispums, but the results were just the same as those of Mr. Roehrs, the plants gradually pining away for the cooler air of their mountain home. This is not surprising, for during one whole week whilst I was there the thermometer never fell below 98° in the shade, and was often up to 104°. For this reason the Americans, about New York at any rate, are denied the cultivation of one of the most

lovely genera in the whole family of Orchidaceæ, though this may not be for long, as I was recently talking to the head of one of our most celebrated northern firms, who makes hybridising a speciality, and he told me they were seriously considering the feasability of raising warmer types of Odontoglossum for the American climate, by crossing the cooler kinds with others which would stand more heat.

Mr. Rochrs devotes about twenty-five large houses to Orchids alone, and it is just about twenty-five years since he began to grow them, but though passionately fond of Orchids he does not confine himself to this class of plant, for he does a very large business in palms, ferns, and general nursery stuff, housed in about seventy-five fine houses, and grounds covering several acres. The Nurseries are well within half an hour from New York, by 23rd Street or Chambers Street ferries to Rutherford Station, and thence by trolly a short distance to the gates.

It may be added that Mr. Rochrs buys all his Orchids on this side of the water, it being cheaper and more expeditious than importing them direct from South America, and I believe that he often places an order for several thousand imported plants in this country.

CRASSINODE.

CALENDAR OF OPERATIONS FOR APRIL.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

THE temperatures of the warmer houses should still be slightly increased, and air admitted more freely, yet with due caution; always taking into consideration the direction and force of the wind. It is of great importance to those having the management of a collection, to see not only that each division is properly ventilated, but also that no great fluctuations of temperature occur. During this month great vigilance will be required on the part of the cultivator, as with the numerous sudden changes in the outside temperature, it is difficult to keep up a regular temperature in the houses, either by day or night. The top ventilators will be needed very little yet awhile, and when they are used should be closed early, which they all may be, say about half-past two, and the houses damped down, opening the bottom ventilators again before leaving off for the day. It is advisable, for several hours during the middle of the day, to allow each division to become comparatively dry. This will allow the plants to throw off any excess of moisture, which, if retained, would probably cause decay. The Cool houses should be damped early in the afternoon, and again before leaving off if necessary, but the ventilators should always remain open, more or less, according to the prevailing conditions outside.

Shading will now be generally necessary, for at this time of year the foliage of Orchids is more likely to get scorched than at any other; this should be done first on the coolest houses, to serve the double purpose of protecting the plants from the sun, and to prevent, to a certain extent, an undesired rise in temperature. In the East Indian house, immediately the sun has sufficient power to raise the temperature six or ten degrees, the blinds should be lowered. In this house, containing, as it does, so many distinct species, it is difficult to attend to the requirements of each separate species as regards shading, but matters may be simplified by a little selection. Plants such as Dendrobiums, Catasetums, Mormodes, Diacrium bicornutum, Thunias, Calanthes, &c., should be placed in the lightest positions, while Cypripediums, Phalænopses, Aërides, Cirrhopetalums, Bulbophyllums, and the evergreen Calanthes, do best on the shady side. The occupants of the Cattleya house will not require shading quite so soon as the warmer growing species, but when the sun is bright it will be necessary. The Mexican house inmates will enjoy the increased sunlight, and if ventilation is properly attended to, the plants will only require to be thinly shaded during the middle of the day.

It will be necessary to keep a continual guard against all destructive insect pests, for with the increased sun heat they will multiply rapidly. This is the time of year to prevent them obtaining a foothold amongst the plants, and the grower should try to exterminate them if possible. Black and yellow thrips are certainly the most troublesome insects, and every means should be employed to effect their destruction. Cleanliness is a great factor in good cultivation, and under good cultural conditions these pests are easily kept under with a little timely attention.

By this time many of the Dendrobiums will have passed out of flower, and be starting to grow freely. Such as D. nobile and its allies, D. × Ainsworthii, D. fimbriatum, D. pulchellum (Dalhousianum) do well in pots, while D. Wardianum, D. crassinode, D. Findlayanum, D. primulinum, D. Boxallii, D. Devonianum, D. tortile, and D. superbum succeed best in pans with perforations round the sides, through which the air circulates and helps to keep the roots in a healthy condition. In preference I use these pans generally, instead of ordinary teak baskets, as the plants are more easily managed when more root room is necessary. In repotting established plants, do not remove more of the old material than is necessary, as Dendrobiums dislike their roots to be disturbed. Carefully break the old pot, taking away as much of it as possible, and if the drainage be well filled with roots, do not disturb it, but place the whole together into a size larger pot, filling up with clean broken crocks to within an inch of the rim. The compost used may consist of two parts chopped sphagnum moss, to one part each of leaf-soil and fibrous peat, with the addition of finely broken

crocks, thoroughly mixing the whole well together. Those plants that require a shift should be attended to at once, taking care to make them secure by the use of sticks, or tying the pseudobulbs to the suspending wires where necessary.

All newly imported plants of Dendrobium should at first be placed in crocks only, and kept in a cool dry house, until the young growths appear. Roots will at once follow, when the plants may be potted, as above advised, and placed in their growing quarters. Guard against overpotting, for if the roots get into a mass of sodden compost, they speedily decay, and this causes the young shoots to stop prematurely, and make weak, sickly growths. After repotting, keep the plants on the dry side for a few weeks, until the new roots have a firm hold of the compost, after which water may be more gradually and more frequently given. When thoroughly established, syringing the plants will be found beneficial in keeping them free from red spider: also sponge the foliage occasionally with weak lemon oil and soft water. Dendrobiums, with but few exceptions, require a hot moist atmosphere, and abundance of light when growing. Where a house cannot be devoted to them, an ordinary plant stove will suit them admirably. Propagation of the various varieties is easily effected, by taking off any of the back pseudobulbs which have not bloomed, cutting them into lengths, and laying them on chopped sphagnum and coarse sand, in some hot, moist, propagating case; or the young growths of choice varieties, which sometimes appear on the old bulbs, may be taken off and potted.

Cattleya Warscewiczii (gigas), and its variety Sanderiana, are now pushing forward their new growths, and water should be given sparingly, or few flowers will follow. As soon as the sheaths are visible, new roots will soon appear, and then is the time to give fresh material, or repot if necessary. When done carefully no harm will befall the flowers or the plant. As soon as the roots find their way into the compost, water may be given more frequently, and in greater quantity, but an over generous supply given in dull cold weather will often endanger the health of the young succulent bulbs.

C. Dowiana aurea, and the forms of C × Hardyana, should have a warm light position given them, and be treated similarly to the above. This section often causes trouble to the grower, being so difficult to keep from making a second growth during the winter, after the first one has flowered, and this, coming so late in the year, is more often than not a failure, in which case the subsequent growth has to come from the secondary bud, or perhaps a back bulb, and in this case the growth is certain to be weak in comparison with that produced from the lead at the right season.

The beautiful C. Trianæ will ere this have done blooming, and a number of roots will be pushing from the base of the last-made pseudobulb. The

young growths will soon follow, and should any plant require top dressing or more pot room, do not delay either operation, or the young roots will get damaged, however carefully the operation be performed. In repotting the plants do not disturb or injure the old roots if possible, keep the plants well elevated above the rim of the pot, and use a few neat sticks to hold all securely. The compost suitable will consist of equal proportions of fibrous peat, leaf soil, and chopped moss. Give plenty of drainage, and pot moderately firmly.

The following plants may also now be safely top-dressed, or repotted where necessary : Cattleya Percivaliana, C. Lueddemanniana (speciosissima), C. Leopoldi, C. amethystoglossa, C. Gaskelliana, and the autumn-flowering C. labiata. After giving fresh material, keep them well shaded, and apply water sparingly until re-established. C. Lueddemanniana, which remains in the Warm house the whole year, should be grown in pans and suspended near the glass, where it can obtain the maximum of light and heat. Give water copiously when growing freely, but only a limited supply is necessary when at rest. These remarks are also applicable to C. superba. C. Schilleriana should be given little water until the sheath becomes apparent.

The present is a good time to repot such species as Lissochilus, and the deciduous Eulophias, using pots well drained, with a compost of fibrous loam, leaf-mould, and coarse silver sand, with an addition of fine clean broken crocks. Place the plants in a sunny position in the Mexican house, and when in full growth copious supplies of water may be given. When resting the plants should be treated like Habenarias.

The pretty Trichopilia suavis is now producing its flower spikes, and all the species of this genus grow best in a shady position in the Cattleya or Intermediate house, and if treated like Cattleyas will keep free from spot, which often takes hold of them when kept too wet or cold. Cattleya citrina has its flowers well advanced, and may now be given water more freely. After flowering it should be placed in a shady position in the Cool house, and water given sufficient to keep the pseudobulbs plump.

Keep the night temperatures generally as previously advised, but if the weather be mild a slight increase may be allowed.

THE AMATEUR'S COLLECTION.

WE were speaking last month of the advantages of purchasing imported plants, and it may be added that many forms of flowers which would not do for exhibition purposes are really much more useful when the object is the decoration of the room or person. Take, for instance, the ever popular Odontoglossum crispum, ordinary forms of which lend themselves to decorative purposes more readily than the highly-prized forms with round massive flowers, because lighter in effect—a great element

of beauty either in vases or bouquets. The following is a list of varieties which may really be called Cool-house Orchids, *i.e.*, those which may be grown all the year round in such a house as described :—

Odontoglossum × Andersonianum and its varieties, O. bictoniense, O. blandum, O. cordatum, O. constrictum, O. coronarium, O × Coradinei, O. Cervantesii, O. cirrhosum, O. crispum, O. Edwardii, O. Hallii, O. × Humeanum (aspersum), O. luteopurpureum, O. nebulosum, O. Pescatorei, O. ramosissimum, O. retusum, O. Rossii, O. tripudians, O. triumphans, O. Uro-Skinneri, and O. × Wilckeanum.

Oncidium cheirophorum, O. concolor, O. cucullatum, O. excavatum, O. Forbesii, O. Gardneri, O. macranthum, O. nubigenum, O. Phalænopsis, O. serratum, O. tigrinum, and O. undulatum.

Masdevallia bella, M. caudata (Shuttleworthii), M. Chimæra and its varieties, M. coccinea and varieties, M. Houtteana, M. ignea, M. Roezlii, M. Schlimii, M. × Shuttryana, M. tovarensis, M. Veitchiana, M. Wageneriana, and M. Wallisii.

Ada aurantiaca, Cochlioda rosea, C. Nœtzliana, C. vulcanica, Cymbidium Lowianum, Cypripedium insigne, C. Boxallii, C. villosum, Dendrobium Jamesianum, Disa grandiflora, Epidendrum vitellinum, Maxillaria grandiflora, Sophronitis grandiflora, Trichopilia fragrans, and others.

Having made a selection from the above list, which will be sufficient to serve our purpose, the plants should next be disposed about the house in a satisfactory style. Thus at the back of the stage place the tallest growing plants, such as Cymbidium Lowianum, Oncidium macranthum, Odontoglossum Edwardii, and such like; then in front place the moderate growing plants of Odontoglossum, intermixed with Ada aurantiaca, Oncidium cucullatum, the Cypripedes, and so on. In the coolest and moistest part of the house place the various Masdevallias, while the roof will be occupied with the dwarfest plants, such as Odontoglossum Rossii, O. Cervantesii, the brilliant scarlet Sophronitis grandiflora, Oncidium Forbesii, and the beautiful Oncidium concolor, to which the dwarfest plants of Masdevallias, such as M. caudata, and other like plants may be added.

When furnished, the Cool house will be a thing of joy and beauty, full of interest even at times when the bloom is comparatively scarce. Do not expect your plants to do too much, either by flowering them too often, or making them carry their flowers too long, as many, especially among the Oncidiums, will flower themselves to death. Have duplicate plants, and flower them in alternate years. Another excellent plan is to cut the spike as soon as developed, and place it in a tube of water next to the plant, as it will last nearly as long as it would if not cut, and at the same time greatly relieve the plants. Orchids are fastidious. Often when they refuse to grow

in one part of the house, they will, for some reason or other, grow well in some other part of the same structure. This must be observed, and when a plant is not at home in one place try it in another, and when you have found the place that suits it, keep it there. The chief elements of success in Orchid growing lie under these heads:—The proper temperature according to season; proper watering; and perfect cleanliness, including pure air.

(To be continued.)

A GROUP OF HYBRID DENDROBIUMS.

DENDROBIUMS are among the gayest of winter and spring flowering plants, and as the hybrids now occupy such a prominent place in collections we have much pleasure in reproducing a photograph sent to us some time ago by Mr. H. J. Chapman, then gardener to R. I. Measures, Esq., Cambridge Lodge, Camberwell, and representing flowers from Mr. Measures' collection.

D. × ELLISII VAR. WIGANIANUM, the upper central flower (fig. 22), is a hybrid raised in the collection of Sir F. Wigan, Bart., Clare Lawn, East Sheen, from D. Hildebrandii ♀ and D. nobile ♂, and thus is the reverse cross of the original D. × Ellisii, which flowered just previously in the collection of W. S. Ellis, Esq., of Dorking. It was exhibited at the meeting of the R. H. S. on February 12th, 1901, under the name of D. × Wiganianum, and received an Award of Merit. The sepals and petals are very pale, and the lip prettily flushed with rose-pink round the maroon coloured disc. It is a floriferous and very beautiful hybrid.

D. × SIBYL, the flower on the left (fig. 23), was raised in the collection of Norman C. Cookson, Esq., Oakwood, Wylam-on-Tyne, from D. Linawianum ♀ and D. bigibbum ♂, and received an Award of Merit from the R.H.S. in March 1893, and a First-class Certificate a year later. The flowers are of a pleasing shade of rose-purple, with a pale disc to the lip, and a pair of small orange-coloured spots at the base. The petals and lip are prettily undulate, but it is curious how completely the shape of the pollen parent has been obliterated.

D. × WIGANIÆ, the upper flower on the right (fig. 24), was also raised in the collection of Sir Frederick Wigan, from D. nobile ♀ and D. signatum ♂, and flowered for the first time in March, 1896. In the following month it also flowered with Messrs. James Veitch & Sons, and received an Award of Merit from the R.H.S. Seedlings were also raised in the collection of Sir Trevor Lawrence, Bart., and flowered about the same time. The flowers are of a pretty shade of light buff, with a pair of dark maroon blotches in the throat. It is dedicated to Lady Wigan.

D. × chlorostele var. Owenianum, represented by two flowers near the centre (fig. 25), is another fine hybrid raised in the collection of N. C. Cookson, Esq., from D. Linawianum ♀ and D. Wardianum ♂, and flowered for the first time in 1891. It was at first called D. × Owenianum, under which name it received a First-class Certificate from the R.H.S. in February, 1893. The sepals and petals are light blush pink below, passing into rose-purple near the tips, and the lip bears a large maroon blotch on the disc.

D. × melanodiscus var. pallens, the flower in the lower right hand corner (fig. 26), was raised in the collection of Sir Trevor Lawrence, Bart.,

Fig. 22 D. × Ellisii var. Wiganianum.

Fig. 23. D. × Sibyl.

Fig. 24. D. × Wiganiæ.

Fig. 25. D. × chlorostele var. Owenianum.

Fig. 26 D. × melanodiscus var. pallens.

Burford, Dorking, and is believed to be one of a series of hybrids obtained by the intercrossing of D. × Ainsworthii and D. Findlayanum. It received an Award of Merit from the R.H.S. in February, 1896, under the name of D. × pallens. It is a very delicately tinted form, relieved by a trace of reddish purple on the disc of the lip.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of the above Society was held at the Drill Hall, Buckingham Gate, Westminster, on March 10th, when a very fine display of Orchids was seen.

W. A. Bilney, Esq., Fir Grange, Weybridge (gr. Mr. Whitlock), was awarded a Silver-gilt Flora Medal for a splendid group of Dendrobiums, beautifully grown and flowered, and well arranged with ferns and other plants, including five fine examples of D. nobile nobilius, D. n. virginale, D. × Ainsworthii splendidissimum, and others.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), secured a Silver Flora Medal for a fine group, including fine examples of O. crispum, O. Hunnewellianum, O. × Rolfeæ, Cymbidium × Lowio-eburneum, Miltonia Roezlii, M. R. alba, varieties of Cattleya Trianæ, and Epidendrum × Endresio-Wallisii, and some good Dendrobiums, a Cultural Commendation being given to a magnificent plant of D. aggregatum majus, with about twenty spikes of orange-yellow flowers. Bulbophyllum occultum, a remarkable Madagascar species, in which the flowers are almost hidden behind the large membranous bracts, received a Botanical Certificate.

J. Colman, Esq., Gatton Park, Reigate (gr. Mr. Bound), received a Silver Flora Medal for a fine group, containing a magnificent specimen of D. nobile Gatton Park variety, bearing about 250 flowers, some varieties of Cattleya Trianæ, Phaius grandifolius, a fine example of Lælia Jongheana, Spathoglottis × aureo-Veillardii, and others.

Sir F. Wigan, Bart., Clare Lawn, East Sheen (gr. Mr. Young), was awarded a Silver Flora Medal for a very beautiful group, containing Odontoglossum Cervantesii, O. Rossii majus, O. × Wilckeanum, O. × Rolfeæ, many fine examples of O. crispum, O. × spectabile, Cymbidium eburneum, C. × eburneo-Lowianum, C. grandiflorum with two spikes, Dendrobium Kingianum, Phaius × Cooksoni, Lycaste × Balliæ, and others.

Sir Trevor Lawrence, Bart., Burford, Dorking (gr. Mr. White), gained a Silver Banksian Medal for a good group, including a fine Dendrobium × Euterpe, D. Wardianum, raised at Burford, D. nobile Berkeleyanum, D. × pallens, Cattleya Trianæ Osmani, and another fine form from the Downside collection.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed a good group of Odontoglossums which gained a Silver Banksian Medal. It contained some good varieties of O. × Adrianæ, O. nevadense Crawshayanum, O. triumphans rosefieldense, and some good O. crispum, including one obtained by crossing a good O. crispum with the finely spotted O. c. Crawshayanum, the result being an ordinary white crispum.

R. G. Thwaites, Esq., Streatham (gr. Mr. Black), gained an Award of Merit for Dendrobium × Thwaitesiæ (splendidissimum grandiflorum × Wiganiæ), a charming hybrid which is described on another page.

J. F. Alcock, Esq., Northchurch, showed a form of Cypripedium insigne.

N. C. Cookson, Esq., Oakwood, Wylam (gr. Mr. Chapman), exhibited Odontoglossum × Rolfeæ Oakwood variety, O. × crispo-Harryanum oakwoodiense, and Phaius × Norman pulcherrimus.

Mrs. Haywood, Woodhatch Lodge, Reigate (gr. Mr. Salter), showed Dendrobium × melanodiscus Salteri, D. × Cybele nobilius, and others.

C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan), showed Cypripedium × Chapmanii Arddarroch variety.

R. I. Measures, Esq., Camberwell (gr. Mr. Smith), exhibited Cypripedium × villexul (villosum × exul), fairly intermediate in character, and with a very glossy surface.

J. Rutherford, Esq., M.P., Beardwood, Blackburn (gr. Mr. Lupton), showed the handsome Odontoglossum × Queen Alexandra (excellens × triumphans).

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Gilbert), sent Lælio-cattleya × Gottoiana Westfield variety, and a cut flower of Cypripedium × Ville de Paris.

The Royal Botanic Society, Regent's Park (gr. Mr. Hawes), received a Cultural Commendation for a finely-flowered example of Cœlogyne cristata.

Messrs. Charlesworth & Co., Heaton, Bradford, were awarded a Silver Flora Medal for a group of very fine hybrids, including Lælio-cattleya × luminosa, L.-c. × Gottoiana, L.-c. × Myra, L.-c. × Digbyano-Mossiæ, the dark scarlet Sophrolælia × Psyche, Cypripedium × Maudiæ, C. × Colossus, and others. A First-class Certificate was given to Cattleya × Enid magnifica, derived from C. Warscewiczii and C. Mossiæ, whose characters it combines.

Messrs. H. Low & Co., Bush Hill Park, showed a group of varieties of Cattleya Trianæ, Odontoglossums, Dendrobiums, &c., for which a Silver Banksian Medal was awarded. An Award of Merit was given to Odontoglossum Rossii Low's variety, in which the markings were pale green in colour.

Mr. J. Cypher, Cheltenham, received a Silver Banksian Medal for a group of finely-flowered Dendrobiums and other things.

Messrs. J. Veitch & Sons, Chelsea, also received a Silver Banksian Medal for a fine group, containing Cattleya citrina, Lælio-cattleya × Vacuna, Zygopetalum crinitum, Dendrobium × splendidissimum Leeanum, the new D. × Pirene (Wiganiæ × Ainsworthii intertextum), Epidendrum × elegantulum, E. × O'Brienianum, and others.

M. Fl. Claes, Brussels, showed a dark and a light form of Odontoglossum × Adrianæ, and two good O. × loochristiense.

Mr. J. Douglas, Edenside, Great Bookham, showed Dendrobium × Florence (nobile album × Bensonæ), a pretty white form with a dark purple disc to the lip.

Messrs. A. J. Keeling & Sons, Bradford, showed some good hybrid Cypripediums and others.

Messrs. De Graaf Bros., Leiden, showed cut spikes of the remarkable South African Bonatea speciosa.

AT the meeting of the Scientific Committee held on the same date the following references to Orchids were made :—

CALANTHES AND MENDEL'S LAW.—Mr. Chapman forwarded the following reply to Captain Hurst's observations reported at the last meeting : " I am not at all surprised to find Captain Hurst claiming the fact of C. × Oakwood Ruby and C. × Sibyl having been derived from the same seed-pod, as bearing directly on the action of Mendel's law. Had the rose or rose-carmine characteristics been maintained, Captain Hurst might have been sure of my support of the principles of which he is such an able advocate. Let us see what has really taken place. The first cross, from C. vestita and C. (Limatodes) rosea, produced C. × Veitchii ; the second cross was between C. × Veitchii and C. vestita rubro-oculata (giving a second cross with C. vestita), and produced C. × Cooksoni, with a yellow eye or disc, also C × Alexandri. Here the first change takes place. The deep ruby eye, as seen in C. vestita rubro-oculata, is removed to the front lobe of the lip and each of the petals, the sepals only being white, in some cases slightly tinted with the colour of the petals. It is remarkable to note that the rose or rose-carmine colours have disappeared. I cannot get at the exact parent that was used in the next generation, but from the information I can gather, the darkest varieties were selected and crossed with each other, until the remarkable variation between C. × Sibyl and C. × Oakwood Ruby was produced. In the latter case the flower of C. vestita rubro-oculata had been turned inside out. I cannot trace any of the rose or rose-carmine of C. × Veitchii in the flower, nor yet the shape of the Limatodes, as seen in C. × Veitchii, but in the bulb the shape and general structure resembles C. (Limatodes) rosea. I cannot see what advantage can be procured by crossing C. × Oakwood Ruby with itself. I cannot expect to gain more from this than I procured nearly six years ago when crossing C. × Veitchii with its own pollen, and the result was that it reproduced itself from seed. I might add to this another instance, in which I procured a primary hybrid from seed. Nearly ten years ago I self-fertilised C. × Leeanum (a very fine form

of it), and the result brought its parent, with no more variation than constitutional or cultural conditions are capable of bringing about. With such clear results as these I, at least, cannot see where the application of 'Mendel's law' applies."

Reversion in Hybrids.—Mr. de. B. Crawshay instanced a case of reversion in Odontoglossum crispum × O. c. Crawshayanum. The flowers were crossed in 1895, sown in 1896, and bloomed in 1903. He added the following remarks: "A seedling raised from a fine Odontoglossum crispum ♀ crossed by O. c. Crawshayanum ♂, which has blotches on the sepals and petals, ¾in. long, of deep purple-brown. The seedling has no blotch or spot, save three extremely small ones in two of the four lips (four blooms). Absolute reversion has occurred, both in form and in absence of blotch. The form is as bad as can be. Hence I deduce that my contention of years' standing, that a true crispum is white and unspotted, has been proved by the first plant to bloom, which has reverted beyond all possible expectation. The blotching of a so-called spotted crispum is, I contend, the remains of hybridity. This, I consider, is, in some way of Nature's own, acquired from O. luteopurpureum; and as these blotches are therefore adventitious, they fail to transmit their characters to the resulting progeny—*ergo*, the spotted crispums are not pure crispums at all, but hybrids or crosses. See my article upon 'Reversion in Odontoglossums' in the *Gardener's Chronicle*, February 14th, 1903."

Cypripedium Crosses.—Specimens of Cypripedium × Actæus were exhibited by Mr. J. Douglas, to illustrate the reversion of Orchids. C. × Actæus was raised by crossing C. × Leeanum with C. insigne Sanderæ, the last-named variety being totally different from any other variety of C. insigne, as it lacks the large spots on the dorsal sepal. C. × Leeanum was obtained by crossing C. Spicerianum with C. insigne Chantini, and the reversion consists in the fact that one variety of C. × Actæus was almost a replica of the original form of C. insigne Chantini, from which C. × Leeanum was produced. Many of the other forms—indeed, nearly all of them—might be described as good varieties of C. insigne.

At the meeting held on March 24th there was again a fine display of Orchids.

N. C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), received a Silver-gilt Flora Medal for a magnificent group, consisting largely of hybrid Phaius, mostly varieties of P. × Norman, about three dozen plants being staged. The group also contained P. Sanderianus, a fine form of Odontoglossum × excellens, O. × Rolfeæ Oakwood variety, having an orange-coloured crest to the lip, O. × Adrianæ Doris, evenly spotted with

dark cinnamon brown, and Dendrobium × Aspasia Oakwood var. An Award of Merit was given to Phaius × Harold (Sanderianus × Norman) which is described on another page, and a Cultural Commendation to a noble specimen of P. × Cooksoni, bearing thirteen flower-spikes.

Capt. G. L. Holford, Westonbirt, Tetbury (gr. Mr. Alexander), was awarded a Silver Flora Medal for an excellent group of varieties, containing a very fine white form of Odontoglossum crispum, a second plant bearing an inflorescence with nine side branches and an aggregate of seventy flowers, O. c. guttatum, O. × Harryano-crispum giganteum, O. × elegans, O. × Adrianæ, O. cirrhosum, Sophronitis grandiflora, the fine Zygopetalum × crinito-Gautieri, and the magnificent Cymbidium × eburneo-Lowianum concolor, which received a First-class Certificate.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), staged a fine group, which secured a Silver Flora Medal. It included Odontoglossum × Ruckerianum, O. × Andersonianum, O. crispum Abner Hassall, O. × Adrianæ Cobbianum, having the flower almost entirely dark chocolate, marked with yellow and white on the inner parts of the segments; O. × Wilckeanum Pittianum, Epidendrum × Endresio-Wallisii, Dendrobium dixanthum, D. Victoria-Regina, D. Farmeri album, Chondrorhyncha Chestertoni, some hybrid Cypripediums, and others.

R. I. Measures, Esq., Cambridge Lodge, Camberwell (gr. Mr. Smith), exhibited Dendrobium × Wiganianum and Cymbidium × Lowgrinum (Lowianum × tigrinum), the latter receiving an Award of Merit.

M. Fournier, Marseilles (gr. Mr. Cleverly), received a Cultural Commendation for a fine Cymbidium × eburneo-Lowianum with two spikes.

De B. Crawshay, Esq., Sevenoaks (gr. Mr. Stables), showed Odontoglossum × loochristiense, and two good forms of O. triumphans.

F. W. Moore, Esq., Royal Botanic Gardens, Glasnevin, sent a fine inflorescence of the remarkable Eulophiella Peetersiana.

The Hon. W. Rothschild, M.P., Tring Park (gr. Mr. Hill), showed the handsome Lælio-cattleya × Digbyano-Mendelii, Tring Park variety.

J. Rutherford, Esq., M.P., Beardwood, Blackburn (gr. Mr. Lupton), sent Odontoglossum × beardwoodiense (Pescatorei × elegans Eastwood Park variety), which is described on another page.

R. G. Thwaites, Esq., Streatham (gr. Mr. Black), showed a fine example of Dendrobium nobile murrhiniacum.

F. Wellesley, Esq., Woking (gr. Mr. Gilbert), exhibited Lycaste Skinneri Westfield variety, having the petals rosy crimson with the rest of the flower blush.

Sir F. Wigan, Clare Lawn, East Sheen (gr. Mr. Young), showed a fine example of the curious Megaclinium falcatum, with seventeen spikes, and a very pretty form of Cattleya Trianæ.

Mr. J. Cypher, Cheltenham, secured a Silver Flora Medal for a fine group, containing Dendrobium Brymerianum, D. × Lutwycheanum, D. × Schneiderianum, D. × Virgil, D. × Rubens magnificum, D. nobile Heathii, D. n. Cypheri, D. × cheltenhamense, D. aureum sulphureum, Cypripedium × Pollettianum, C. villosum giganteum, Epiphronitis × Veitchii, Sophronitis grandiflora, Miltonia Roezlii, Trichopilia suavis, Lælia Jongheana, and others.

M. Otto Beyrodt, Marienfelde, Berlin, secured a Silver Banksian Medal for a fine group of Odontoglossums, principally forms of O. Adrianæ, together with the beautiful Cattleya Trianæ cœrulea.

Messrs. Sander & Sons, St. Albans, received a Silver Banksian Medal for an effective group, containing Epidendrum × Endresio-Wallisii, Miltonia × Bleuana nobilior, the pretty Cymbidium Lowianum concolor, varieties of Odontoglossum × Wilckeanum, O. crispum, O. × loochristiense, O. × Adrianæ, O. triumphans latisepalum, Trichopilia suavis with two fine spikes, and others.

Messrs. J. Veitch & Sons, Chelsea, staged a nice group, containing Dendrobium × Ainsworthii Elsie (aureum × nobile Ballianum), D. × Socius, D. × euosmum roseum, D. × Euryalus, D. crassinode, Lælio-cattleya × Thyra (C. Schroderæ × L.-c. × Hippolyta), varieties of Epidendrum × elegantulum, Masdevallia × Ajax, and others.

Messrs. H. Low & Co., Bush Hill Park, showed Lælia flava, L. Cowani, Cypripedium niveum Low's variety, Arpophyllum giganteum with five spikes, Odontoglossum tentaculatum, and other plants.

Mr. J. Douglas, Edenside, Great Bookham, showed a hybrid Cattleya.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

A MEETING of this Society was held at the Coal Exchange, Manchester, on March 5th, when a good display of Orchids was seen.

W. Duckworth, Esq., Flixton (gr. Mr. Tindall), was awarded a Silver Medal for a fine group of Dendrobiums. A First-class Certificate was given to D. × D'Alroy Salamon, a plant of unknown parentage, allied to D. × Ainsworthii intertextum, with a large flower, having the disc of the lip very dark. Awards of Merit were given to D. nobile burfordiense, and D. × Cybele Oakwood variety.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), secured a Silver Medal with an excellent group, consisting chiefly of Dendrobium Wardianum and good Cypripediums.

S. Gratrix, Esq., Whalley Range (gr. Mr. Cypher), exhibited a nice lot of plants, of which Odontoglossum × Amelia, Cypripedium × beechense, and C. × Cardosoanum received Awards of Merit.

W. Thompson, Esq., Stone, Staffs. (gr. Mr. Stevens), showed the dis-

tinct Odontoglossum × Harryano-crispum albens, a very pale sparsely spotted form, a very fine specimen of Dendrobium Kingianum, with about thirty spikes, which received both an Award of Merit and a Cultural Certificate, and Cypripedium × Miss Fowler (insigne Chantini × Chamberlainianum), which obtained an Award of Merit.

Lady Brunner, Druid's Cross, Wavertree, received an Award of Merit for Cattleya Trianæ var. Lady Brunner.

H. Partington, Esq., Talbot House, Glossop, exhibited Odontoglossum × Adrianæ and O. × Andersonianum.

Messrs. J. Cypher & Sons, Cheltenham, received a Silver Medal for a fine group of plants, Awards of Merit being granted to Cattleya Trianæ triumphans and Dendrobium × splendidissimum albens.

Messrs. Sander & Sons, St. Albans, were awarded a Bronze Medal for a good group of Cattleyas, Cypripediums, Phaius, &c.

Mr. S. Allen, Sale, received a Bronze Medal for a group of well-flowered Lycastes, Dendrobiums, &c.

Messrs. A. J. Keeling & Sons, Westgate Hill, Bradford, gained an Award of Merit for a fine plant of Cirrhopetalum picturatum.

Messrs. H. Low & Co., Enfield, showed a good Dendrobium nobile virginale.

THE HYBRIDIST.

DENDROBIUM × THWAITESIÆ.—This is a charming little hybrid from the collection of R. G. Thwaites, Esq., of Streatham (gr. Mr. Black), which received an Award of Merit from the R.H.S. on March 10th last. It is the first home-raised seedling to flower in the collection, and was obtained by crossing a form of D. × Ainsworthii—the one known as splendidissimum Thompson's var.—with the pollen of D. × Wiganiæ. On the whole it most resembles the latter. The form is very good, and the sepals and petals are of a pleasing shade of light buff yellow, slightly flushed with rose at the tips, while the lip is similar in colour, and bears a large maroon disc, very slightly feathered at the margin. The resemblance to D. × Wiganiæ in colour is what might have been expected, for if the proportion of D. signatum blood is reduced by half, the balance is redressed by a corresponding amount of D. aureum, obtained through the D. × Ainsworthii parent. D. × Pirene (D. × Wiganiæ × Ainsworthii intertextum), exhibited by Messrs. Veitch at the same meeting, we should suggest is a form of the same.

CYMBIDIUM × LOWGRINUM.—This is a very pretty hybrid, raised in the collection of R. I. Measures, Esq., of Camberwell (gr. Mr. Smith), from Cymbidium Lowianum ♀ and C. tigrinum ♂, which gained an Award of Merit from the R. H. S. on March 24th last. The inflorescence bore three

flowers, one of which has been kindly sent to us. It is fairly intermediate in character, the sepals and petals being light green, tinged with brown towards the apex, and measuring two inches long ; while the lip is yellowish, with a white disc, and a number of large dark red-brown blotches on the front lobe. At present it most resembles the pollen parent in habit, but has probably not yet reached its full development. The name is an abbreviated combination of that of the two parents.

ODONTOGLOSSUM × BEARDWOODIENSE.—A very pretty hybrid from O. Pescatorei ♀ and O. × elegans Eastwood Park var. ♂, which was exhibited at the R. H. S. meeting on March 24th last, by J. Rutherford, Esq., Beardwood, Blackburn (gr. Mr. Lupton). The sepals and petals are light yellow, the former heavily blotched with deep red-brown, and the latter bearing very numerous smaller spots, which are more or less confluent in a large group on the disc, leaving the apex and margins clear yellow. The lip is clear yellow, with a very large red-brown blotch, sometimes partially broken up, in front of the crest. In shape it is fairly intermediate, the sepals and petals being somewhat acuminate, and the latter ¾ inch broad ; while the lip is broadly oblong, over an inch long by ⅝ inch broad, closely denticulate all round, and undulate in front. The crest shows the characters of both species, and the column wings are enlarged and well toothed. It is most like O. × elegans, with all the segments much broader, and such a form might have been anticipated from the combined influence of O. Pescatorei, Hallii and cirrhosum.

PHAIUS × HAROLD.—This is a very handsome hybrid raised in the collection of N. C. Cookson, Esq., Oakwood, Wylam-on-Tyne, from P. Wallichii Sanderianus ♀ × Norman ♂, to which an Award of Merit was given on March 24th last by the R.H.S. In colour, and the shape of the lip, it greatly resembles the pollen parent, but the spur is about twice as long, and the segments are about a fourth longer. On the whole it resembles the hybrid parent more closely than the original P. Wallichii.

ORCHIDS FROM CHELTENHAM.

A very beautiful series of Orchids is sent by Messrs. James Cypher & Sons, of Cheltenham. It consists largely of Dendrobiums, which are grown to perfection in the establishment. A series of flowers of D. nobile shows the remarkable variation to which the species is subject, as the forms range from the pure white D. n. virginale up to the large and richly coloured D. n. nobilius. D. n. Sanderianum has shorter segments of the same dark rose-purple shade, while Fischeri is equally rich in colour, but intermediate in shape. In D. n. Ballianum the usual maroon disc is replaced by pink, the

rest of the flower being blush-white, while murrhiniacum is rather larger and the disc a darker shade of rose-pink. D. n. elegans, Cypheri, Heathii, majus, rotundiflorum, Cooksonianum, and other named forms are also included.

D. × Ainsworthii is represented by the varieties Leechianum, splendidissimum, Cypheri, a charming soft rose-pink form, the very fine Stand Hall variety, and marginatum, in which the sepals are distinctly margined with rose. These Ainsworthii forms we think are an improvement on D. nobile, especially in having a more expanded lip, and the disc feathered at the margin.

D. × Rubens was derived from the intercrossing of D. × Ainsworthii with D. nobile, and is remarkably variable. The original D. × Rubens is a large rose-purple form, the variety Apollo bright rose-pink, grandiflorum larger and lighter in colour, albens clear white, with a very dark maroon disc, slightly feathered at the margin, and Virgil larger, tipped with rose, and the disc not feathered at the margin. All of them are very beautiful.

Other hybrids sent are, D. × Schneiderianum, a gem of the first water, D. × Cybele and its variety nobilius, the beautiful D. × Burberryanum, and D. × Pitcherianum Rolfeæ, while the species are represented by D. Findlayanum, D. F. albens, the charming D. crassinode album, and the remarkably fringed D. Brymerianum.

Inflorescences of Epidendrum radicans, E. evectum, and E. xanthinum are also enclosed, the contrast of colour being remarkably effective. Lastly may be mentioned a flower of the beautiful Vanda teres, the whole forming a magnificent series, and splendidly grown.

ORCHID HYBRIDISATION.

(*Continued from page* 62.)

A MATTER which often perplexes beginners at this stage, and on which we have recently been consulted, is that capsules will often swell to a considerable size, and then go off prematurely, or when they open they may be empty, or contain nothing but shrivelled hairs. In many cases this arises from fertilisation not having taken place. Pollination and fertilisation may be considered as two stages of the same process, but they are often separated by an interval of several weeks or even months, during which period a remarkable development is taking place.

If an ordinary flower—a lily for example—be examined as soon as the flower opens the ovary and its contained ovules will be found in a developed condition, so that when the pollen is applied to the stigma the tubes grow rapidly, making their way down the tissue of the style, and into the ovary,

when they enter the micropyle of the ovule, and unite with the contents of egg-cell, this latter constituting the act of fertilisation, after which alone the ovule can develop into a perfect seed. But if an Orchid flower be examined at the same stage, the ovarian cavity and ovules will be found in quite a rudimentary stage, and if not pollinated they will progress no further, at length falling off in the same stage. But when pollinated a rapid change takes place. The column begins to swell, and its wings to curve inwards over the column, while the segments quickly begin to fade or change colour. This fact is well known to cultivators, and efforts are made to keep bees out of the houses, as they spoil the flowers by pollinating them.

The act of pollination applies a stimulus to the ovary, causing it to swell, and at the same time the ovules develop, and it is only after development that fertilisation can take place. In the case of Cattleya Mossiæ the whole process has been carefully worked out by Messrs. Veitch, who by a series of experiments ascertained that fertilisation does not take place until a period of from 75 to 90 days after pollination. The process is briefly as follows:—A few hours after pollination the floral segments become flaccid, and show signs of withering. In a couple of days the pollinia are seen to be disintegrating, forming, with the viscid secretion from the stigma, a gelatinous mass that quite fills up the stigmatic cavity. At the same time the pollen tubes have commenced to grow, and in eight days they have reached the base of the column, being found in vast numbers among the cells of the conducting tissue. At the end of a month the ovary has become considerably enlarged, and the placentæ and ovules are beginning to assume a definite form, while the pollen tubes are pushing downwards along the sides of the placentæ and among the ovules. In two months, though the pollen tubes are present in countless numbers, and have even reached the base of the ovary, the ovules are not yet developed, but soon afterwards they rapidly undergo a change of form, and at the end of about three months the long looked for event takes places. The pollen tubes now enter the micropyle of the ovule, and fertilisation of the egg-cell takes place.

It is noteworthy that before this event takes place the ovary has developed from a terete body, less than a quarter of an inch in diameter, to a six-angled one, more than seven times as broad, entirely through the stimulus given by the act of pollination, and the subsequent growth of the pollen tubes, which enables one to realise to some extent the reason why a capsule may go off after making considerable progress, or even contain no good seed. There is reason to believe that the period required for the development of the pollen tubes and ovules varies somewhat in different Orchids, and this may possibly represent one cause of failure when very distinct species are intercrossed.

(*To be continued.*)

ORCHIDS IN SEASON.

THE beautiful Dendrobium nobile is now making a brave show, and is remarkably variable. Flowers of nine different forms are sent from the collection of W. C. Walker, Esq., Percy Lodge, Winchmore Hill, by Mr. Cragg, who remarks that they are from a batch of about forty plants received from Burma direct, and that scarcely any two of them are alike, the variation also extending to the growth to some extent. We have repeatedly noticed this variation among importations of D. nobile, and it affords opportunities for the selection of distinct varieties, a good many of which have now been named. All the forms sent are beautiful, but there are two which are specially worth taking care of.

A very fine three-flowered inflorescence of Dendrobium Brymerianum is sent from the collection of A. E. Wilson Browne, Esq., of Sutton Coldfield. It is from a fine plant, believed to be from twenty to thirty years old, and now bearing upwards of one hundred flowers. Such a plant, with its remarkably fringed lip, would be worth seeing. It is said that last year the flowers were deeper in colour and less fragrant, but the cause of difference is not known.

Some beautiful Dendrobiums are sent from the collection of E. P. Collett, Esq., New Croft, Hale, Cheshire. There are three forms of D. Wardianum, one measuring four inches across, and another having very dark tips to the segments, while the third is represented by an inflorescence of four beautiful flowers. The other is a good form of D. primulinum with very deep rose-coloured sepals and petals.

Three very beautiful Lælio-cattleyas are sent from the collection of J. Leemann, Esq., West Bank House, Heaton Mersey, by Mr. Edge. They are, L.-c. × Charlesworthii (L. cinnabarina ♀ × C. Dowiana aurea ♂), a fine thing with rich orange sepals and petals, and a very undulate rosy crimson lip, prettily veined with yellow; L.-c. × Charlesworthii var. princeps, a large and handsome form, having the sepals and petals of a deep yellow shade; and a charming form of L.-c. × Lucia (L. cinnabarina × C. Mendelii), in which the flowers are entirely bright yellow, with the exception of the front of the lip, which is of the richest purple-crimson, the throat being yellow. The two former came from Messrs. Charlesworth & Co., and the difference between them is remarkable, considering that both came out of the same seed-pod. The latter is from a batch of seedlings raised by Messrs. Sander & Sons. Flowers of the handsome Dendrobium × Venus grandiflorum are also sent, which measure five inches from tip to tip of the petals, and the expanded lip is 1½ inches broad. Mr. Edge remarks that the plant has twelve stems, of 3½ to 4 feet long, and well flowered. It is a magnificent hybrid, and well named in every respect.

A flower of the pretty little Dendrobium × Bryan (luteolum × Wardianum) is sent from the collection of R. Ashworth, Esq., Newchurch, near Manchester. It most resembles D. luteolum in general character, with the addition of numerous reddish maroon radiating lines on the lower half of the lip. Mr. Pidsley remarks that it is a miffy grower, but it is found that when placed in the Cattleya House it makes shorter and stiffer growth than in the East Indian House, and some other Dendrobiums are found to behave in the same way.

A fine ten-flowered inflorescence of the beautiful Cattleya amethystoglossa is sent from the collection of Mrs. Grogan, Baltinglass, Co. Wicklow, together with Lælia × Latona in excellent condition. The former is especially well grown, and another flower of it has been crossed with the Lælia mentioned, in the hope of getting some pretty free-flowering hybrid.

A good form of the pretty little Odontoglossum × Adrianæ is sent from the collection of Joseph Broome, Esq., Sunny Hill, Llandudno, and, as usual, it appeared in a lot of O. crispum. The colour is light yellow, copiously blotched with brown.

Flowers of a good bright form of Odontoglossum Rossii are sent from the collection of W. M. Appleton, Esq., of Weston-super-Mare, together with a good form of Paphiopedilum × Gertrude Hollington, and three pretty hybrids from P. Chamberlainianum. The first has P. × Godefroyæ leucochilum for the pollen parent, and is a very promising little hybrid, fairly intermediate in shape and colour. In the second case P. insigne is suggested as probable, and the flower shows some evidence of such an origin. The third is quite doubtful, but may have P. insigne or one of its hybrids as the second parent. The flower is large, with the dorsal sepal yellowish green, strongly reticulated with purple, and the petals more green, spotted all over with dark purple-brown. The leaf is green. It is a handsome thing, and the question of its origin may be cleared up hereafter.

Two large and beautiful forms of Cattleya Trianæ are sent from the collection of Darcy E. Taylor, Esq., of Chippenham (gr. Mr. Coote). One is delicate blush pink, with the lip a shade darker, and traces remaining of a purple blotch in front of the deep yellow throat. The petals are $2\frac{3}{4}$ inches broad. The second is bright rose-pink, with the petals $2\frac{1}{2}$ inches broad, and the front of the lip rich purple-crimson, which colour extends right round the apex of the side lobes to where they meet. The throat is deep yellow, and the strongly undulate margin pale lilac.

Flowers of several fine Orchids are sent from the collection of J. E. Vanner, Esq., Camden Wood, Chislehurst, by Mr. Robbins, including Masdevallia × Heathii, the fine Cymbidium × eburneo-Lowianum, C. Lowianum with the front lobe of the lip extremely dark, Phragmipedilum × cardinale and P. × pulchellum, the beautiful Phaius ×

amabilis, Dendrobium × Waltoni (melanophthalmum), and others, the whole forming a very pretty little group.

Several fine forms of Dendrobium nobile are sent from the collection of Mrs. Grogan, Slaney Park, Baltinglass, Co. Wicklow, which came out of a batch of imported plants. One of them measures 4½ inches across, while another quite rivals D. n. nobilius in shape and richness of colour. A pretty form of D. aureum, aproaching the variety cinnamomeum, is also sent.

Dendrobium aureum sulphureum is a very pretty sulphur-yellow variety, from Mr. J. Cypher, of Cheltenham, in which the usual orange markings have vanished. It appeared among some imported plants.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, during April, on the 7th and 21st, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on April 2nd and 16th. The Committee meets at 11.30 a.m., and the exhibits are open to inspection from 12.30 to 3 p.m.

As already announced, the Great International Horticultural Exhibition of the Société Royale d'Agriculture et de Botanique de Gand, will be held at Ghent from April 18th to 26th next. No less than seventy-six classes are devoted to Orchids, and we learn that a large and representative display is anticipated, in which our British collections will be included. It is hardly necessary to add that the Ghent Quinquennial is one of the most important events of the season, and invariably brings together a large assemblage of Continental and British horticulturists.

M. L. Linden, Moortebeek, Brussels, writes that he has hybrids from Odontoglossum crispum ♀ and Miltonia vexillaria ♂, which are now strong plants and promise to flower soon. They appear to be quite intermediate between the parents. We hope to be favoured with an example when the flowers appear.

A flower of a distinct form of Odontoglossum Rossii called "Low's variety," to which an Award of Merit was given by the R.H.S. on March 10th last, is sent by Messrs. Hugh Low & Co., of Bush Hill Park. The markings on the sepals and base of the petals are light green instead of the usual red-purple tint, and thus it is referable to the variety O. Rossii virescens.

It is interesting to record that a fine plant of the remarkable Eulophiella Peetersiana has just flowered with Mr. F. W. Moore, A.L.S., at the Royal Botanic Garden, Glasnevin. The spike measured 5½ feet long, and carried twenty-eight flowers, while the largest leaf is 4 feet 1 inch long by 5½ inches broad. The top of the spike, bearing thirteen flowers, was exhibited at the R. H. S. meeting on March 24th. The colour was paler purple than the one which flowered with Sir Trevor Lawrence, in April 1898, and was figured as the frontispiece to our sixth volume.

A most remarkable deformity of some Paphiopedilum hybrid is sent from the collection of W. M. Appleton, Esq., of Weston-super-Mare. It appears to be only a single flower, with the usual dorsal sepal, two petals, and staminode, but there are three lateral sepals, and the lip is replaced by five crumpled organs of lip-like texture and appearance. The seedling has green leaves, and produced four or five growths before flowering. Its parentage is at present doubtful.

The March number of Messrs. Cogniaux and Goossens useful little *Dictionnaire Iconographique des Orchidées* contains figures of the following:—Bulbophyllum macranthum, Calanthe × Dominii, Cattleya × Whitei, Cymbidium Devonianum, Cypripedium barbatum, C. Haynaldianum, Lælio-cattleya × callistoglossa inversa, L.-c. × Emiliæ, L.-c. × Orpetiana massiliensis, Lycaste Smeeana, Phalænopsis Sanderiana, Saccolabium ampullaceum, and Vanda Sanderiana Froebeliana.

At the Horticultural Congress, organised by the Société Nationale d'horticulture de France, which will be opened at Paris on May 22nd next, two important questions relating to Orchids are on the programme, namely, (*a*) What is the most practical and most efficacious method of sowing, germinating and raising seedling Orchids? and (*b*) The rational application of culture in leaf-mould to all genera of Orchids.

A flower of the brilliant Phaio-calanthe × Ruby is sent from the collection of N. C. Cookson, Esq., Oakwood, Wylam-on-Tyne, by Mr. H. J. Chapman. It is a most beautiful hybrid, with rose-pink sepals and petals, and the most brilliant ruby-crimson lip. In shape it most resembles the Calanthe parent.

With reference to the reported rapid flowering of a Cattleya seedling (pp. 66, 83), Mr. Odell writes that it was a seedling Calanthe exhibited at the meeting in question to which he called attention, but in some way it was transposed to "Cattleya" in the Report.

ORCHID PORTRAITS.

CATTLEYA × ENID MAGNIFICA.—*Journ. Hort.*, 1903, i. p. 265, with fig.; *Garden*, 1903, i, p. 215, with fig.

CATTLEYA LODDIGESII VAR. HARRISONIÆ SUBVAR. JORISIANA.—*Lindenia*, t. 799. A form of C. Loddigesii, not of C. Harrisoniana.

CATTLEYA TRIANÆ VAR. MEMORIA RODIGASI.—*Lindenia*, t. 795.

CATTLEYA TRIANÆ VAR. TRIUMPHANS.—*Lindenia*, t. 797.

CYMBIDIUM TRACYANUM.—*Revue Hort. Belge*, 1902, p. 25, with plate.

CYPRIPEDIUM LAWRENCEANUM VAR. ARDENS.—*Lindenia*, t. 794.

CYPRIPEDIUM × LEEANUM VAR. OLIVACEUM.—*Lindenia*, t. 798.

CYPRIPEDIUM × MISS LOUISA FOWLER.—*Lindenia*, t. 796.

DENDROBIUM NOBILE NOBILIUS (specimen plant).—*Gard. Mag.* 1903, p. 193, with fig.

DENDROBIUM × THWAITESIÆ.—*Garden*, 1903, i, p. 203, with fig.

DENDROBIUM × WIGANIÆ XANTHOCHILUM.—*Journ. Hort.* 1903, i, p. 245, with fig.

ODONTOGLOSSUM × BRADSHAWÆ.—*Garden*, 1903, i, p. 184, with fig.

ODONTOGLOSSUM CRISPUM GRACE RUBY.—*Gard. Chron.*, 1903, i, p. 165, fig. 71. VAR. GRISELDIS.—*Lindenia*, t. 793.

PHALÆNOPSIS KUNSTLERI, Hook. f.—*Bot Mag.*, t. 7885.

VANDA TRICOLOR VAR. TENEBROSA.—*Lindenia*, t. 800.

ZYGOPETALUM CRINITUM CŒRULEUM.—*Journ. Hort.*, 1903, i, p. 197, fig.

CORRESPONDENCE.

J.C. All three Odontoglossums are forms of O. × Andersonianum, and very prettily marked, the rosy one (1 being the variety Ruckerianum, and the yellow form (3) var. hebraicum. The Paphiopedilum insigne is below the average, but is flowering late, and may not be fully developed.

W.M.A. One of the numerous forms of Odontoglossum × Andersonianum.

D.W., Glasgow. Dendrobium speciosum. The seedling from Paphiopedilum barbatum Warneri × bellatulum is a form of P. × Richmanii, and should develop into a good thing.

W.H.R. The seedling Dendrobium aureum × Ainsworthii splendidissimum is known as D. × The Gem. The plant purchased as Odontoglossum crispum fastuosum is not that variety, and at present quite an ordinary form.

W.B. A form of Odontoglossum × Denisonæ with white ground, well blotched with red-brown on the sepals, and less so on the petals and lip. It should develop into a handsome thing.

Mrs. R., Florence. Paphiopedilum × Ensign is a hybrid between P. × Harrisianum and P. barbatum, and your seedling is either that or very closely allied. It is extremely vigorous, the leaves being over a foot long and the flower very large.

J.W., Rotherham. The withered segments of Odontoglossum Cervantesii will not affect the development of the capsule, unless they become mouldy or decayed, but there is no object in leaving them on after they are dead. Very glad the article was so helpful.

T.T. Paphiopedilum villosum giganteum, an exceptionally fine form.

E.P.C. Believed to be Cœlogyne graminifolia. The leaves should be rather long and narrow.

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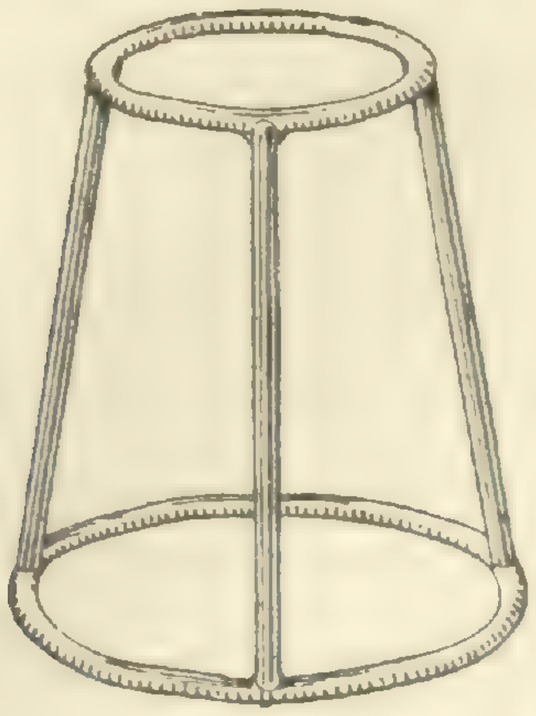

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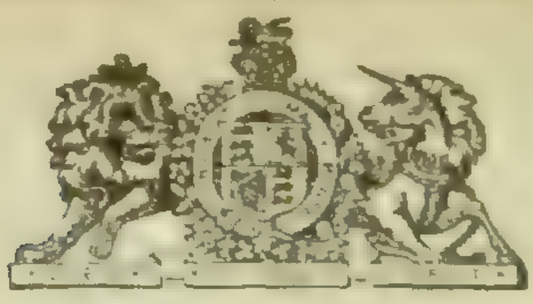

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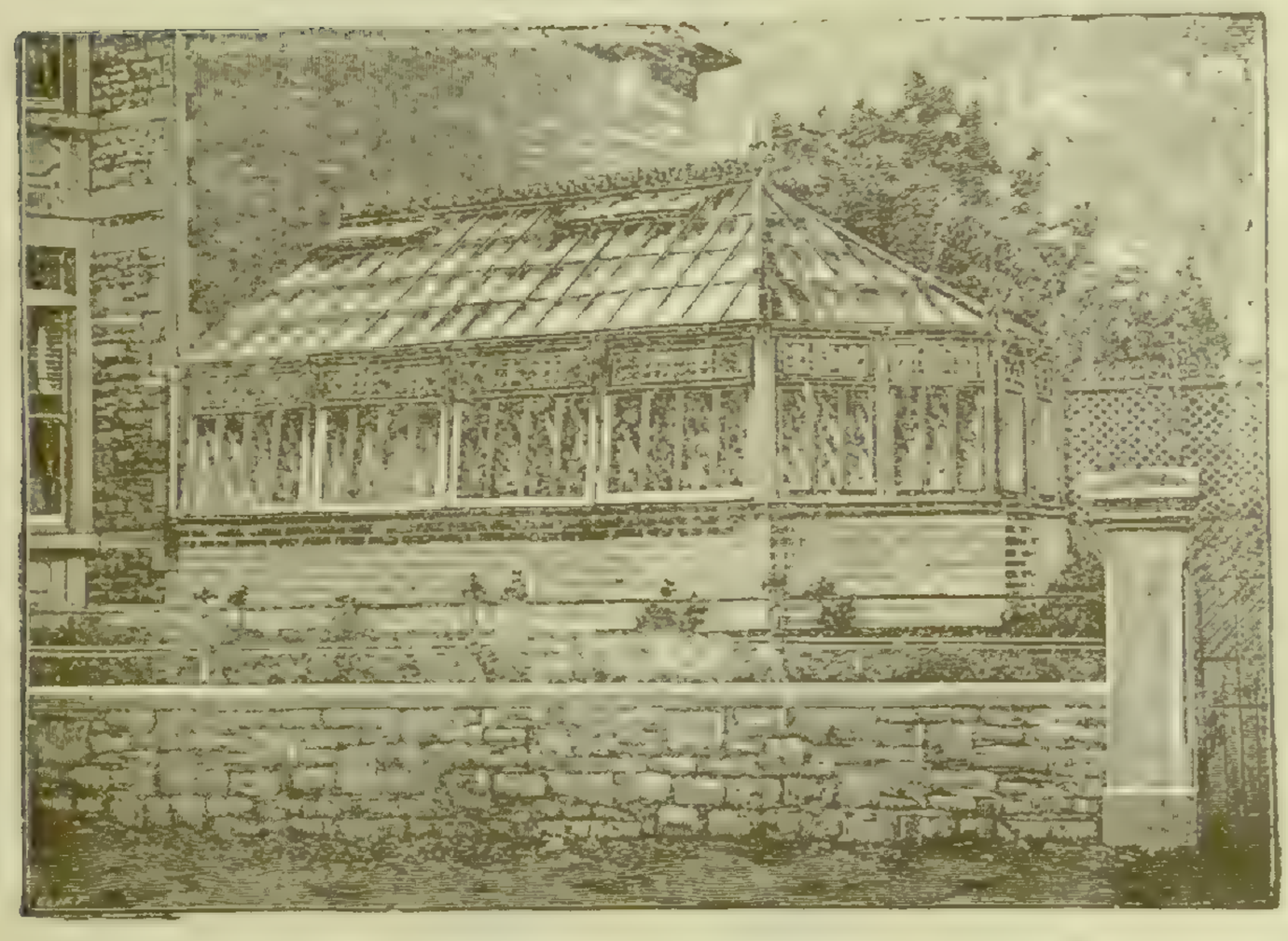

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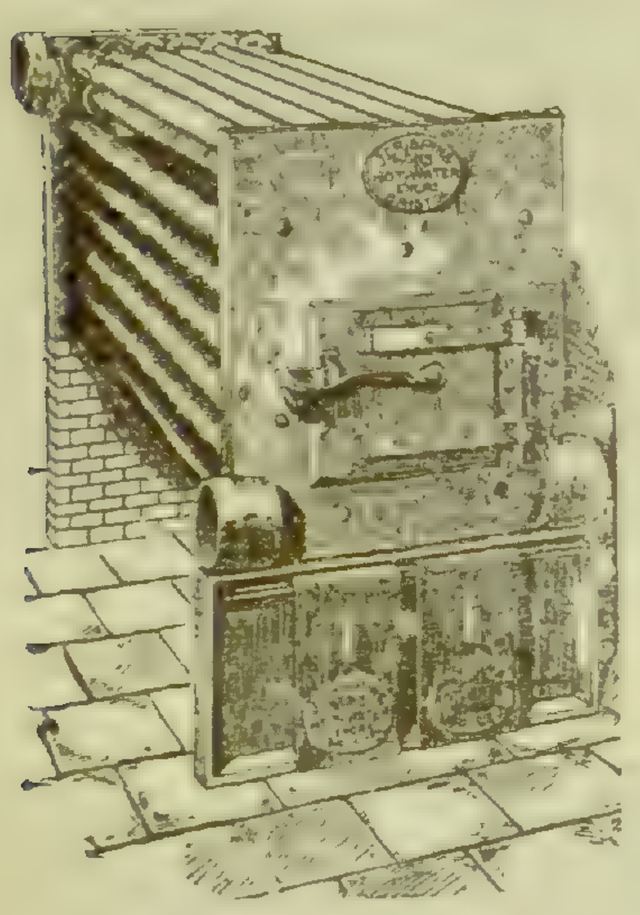

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An Illustrated Monthly Journal of Orchidology.

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VOL. XI.] *MAY*, 1903. [No. 125.

ORCHIDS AT ST. GILLES, BRUSSELS.

WE have seen many Orchids of sterling quality from the establishment of M. A. A. Peeters, of St. Gilles, Brussels, last, but not least, being the magnificent group which gained the Gold Medal offered by His Majesty the King of the Belgians for the best group at the recent Ghent show, and which was further distinguished by the award of a Gold Medal from the Royal Horticultural Society. We were therefore the more pleased when, a few days later, the opportunity presented itself of seeing the famous establishment from which they came. The term might be spoken of in the plural, for there are three establishments, two others having been successively formed, at some distance away, when the original one was no longer equal to the demands upon it. We will take them in the order visited.

A drive from M. Peeters' residence brought us to the establishment which is almost entirely devoted to cut flowers, and the sight of nineteen large houses, filled from end to end with healthy plants, enabled us to realise to some extent how great a demand there must be for Orchid flowers, as various other Belgian nurseries also cater for the market. We first went into a house of Odontoglossums, some 60 feet long, and computed to contain 2,000 plants. The house is span-roofed, with the stages completely open so as to allow a full circulation of air. There are central and side stages, enabling the plants to be arranged at a convenient distance from the glass, and the necessary shade is provided by the use of lath roller blinds, both on the roof and at the ends of the house. The plants are grown entirely in leaf-compost, and we take it that its use on such an extensive scale indicates some economic advantage—at all events the results are satisfactory, for the plants were throwing up a forest of spikes. Looking underneath the stages we observed that the pipes were covered with old tobacco stalks, the use of which is a great help to the Belgian cultivator in keeping thrip down.

We entered successively four other houses, similar in size and character, and in the number of plants contained, except that in the last we observed a large batch of Oncidium Marshallianum, and other Oncidiums, throwing up hundreds of spikes. Then came about four houses containing back bulbs, which had been potted up and will ultimately develop into good

plants, and then more houses similar to the first, but varied somewhat as to their contents. Thousands of spikes were throwing up in these several houses, and a good many plants were in flower, those noted being some good forms of Odontoglossum crispum, white, rose-coloured, and spotted, several good forms of O. × Andersonianum, luteopurpureum, and Pescatorei, O. Edwardii, Oncidium superbiens and serratum, a fine batch of Masdevallia Veitchiana superba, forming a mass of colour, and several fine plants of Maxillaria Sanderiana in flower.

We next went into two Cattleya houses, containing nearly 6,000 plants of C. labiata, and yet another largely devoted to Lælia autumnalis and L. anceps. Then came a house of C. Dowiana aurea, in splendid health, all in the inevitable leaf-mould. The latter are not grown for cut flowers, as M. Fr. Peeters, our chaperone, remarked that the plants were sold in the usual way. Then followed a Phalænopsis house, containing a lot of healthy plants, and a remarkable lot of Vanda cœrulea, in thriving condition. M. Peeters says they are grown warm all the year round. The next house is devoted entirely to Vanda cœrulea, which is evidently a great plant for cut flowers, and one does not often come across four thousand plants of this species, and in such sturdy health. A few capsules on the Phalænopsis tell of hybridising operations, including one of P. Schilleriana × P. amabilis Rimestadiana, but more of this presently. Lastly came a large house of Dendrobium Phalænopsis, how many we should not like to say, but we counted sixteen bays of about two yards each. It is a splendid plant for cutting.

We now drove to another large establishment, where hybridising operations are carried on largely, and where interesting objects were met with at every turn.

We first entered a corridor some 200 feet long, from which extend seven houses at right angles, and here we found an enormous quantity of Cattleyas in vigorous health, a few good C. Trianæ being in flower. We were also confronted by two flowering examples of the fine Lælio-cattleya × Choletiana, and M. Peeters showed us a beautiful plant of the very rare and valuable Cattleya Warneri alba, with seven bulbs and one sheath.

Turning into the first house, we found a very fine collection of seedling Cypripedes and Cattleyas, and among the things pointed out were a batch of seedlings from a very white form of Lælia purpurata crossed with Cattleya Mossiæ Reineckeana. These have commenced to flower, and have produced several Lælio-cattleya × Canhamiana alba, the proportion of whites being perhaps one third.

The next three houses are largely devoted to choice seedling Cattleyas and Lælias, all in leaf-mould, and in the most robust health, often rooting

through into the layer of blue-limestone shingle which is spread over the solid stages beneath the open ones. Many interesting crosses were pointed out, and M. Peeters told us that most of them had been effected both ways, though not all. A few of the more promising ones may be mentioned here. Cattleya Gaskelliana alba × C. Warneri alba should yield a very fine hybrid, and there are many young plants, with some of larger growth. Theoretically the flowers should be white, but M. Peeters believes they will contain both white and coloured forms, as some of them have purple margins to the leaves. Sophronitis grandiflora × Lælia purpurata, and Cattleya Lawrenceana × Sophronitis should both be good. Home-raised plants of Cattleya granulosa Schofieldiana × Schilleriana were in flower, and are considered identical with the natural hybrid C. × resplendens. Lælio-cattleya × Fanyauana (L. tenebrosa × C. Trianæ) is a richly coloured hybrid of which several flowers were seen, and they vary considerably. We noted also flowers of L.-c. × Massangeana, the pretty Cattleya × Miranda, and C. intermedia Parthenia. Cattleya Schilleriana and Lælia purpurata have yielded another handsome hybrid, and the seedlings were raised both ways.

In the next house we saw some good Cattleya Schrœderæ and Mendelii in flower, some of the latter being curiously abnormal, one flower being dimerous, and another reduced to a single segment and a slender column. Here also was a hybrid from the true Lælia grandis × Cattleya Mossiæ, in sheath, some capsules of Odontoglossum, and one of Brassavola Digbyana showing its remarkable beak. Passing into the following house we found a lot of Cypripediums and Cattleyas, various forms of the latter being in flower, also a curious form of Miltonia × Bleuana, which we at first took for M. Roezlii. It is a seedling of the same origin, though the flowers closely resemble M. Roezlii. The leaves, however, are intermediate, and, unlike M. Roezlii, the plant can easily be divided.

The last house of the block contained many plants of Cattleya Dowiana aurea, and we mention this fact specially because M. Peeters called attention to a raft, suspended close to the glass, in which were plunged about eighteen pots containing lots of tiny seedlings, and rather startled us by saying that they were Odontoglossums! In such a temperature, too! "Yes," said M. Peeters, "if you want to raise Odonto-glossums you must get them up in a fortnight." At all events here they were, and we then adjourned to the adjacent cool department to see the larger seedlings, nearly 1400 in number, and of various sizes, about forty having reached a considerable size Two only have yet flowered, namely O. × loochristiense and O. × crispo-Harryanum. There were a few good plants derived from the intercrossing of spotted forms of O. crispum, which should prove very interesting when they flower; also O. Rolfeæ

ardentissimum × spotted crispum. We also saw some young plants of O. × waltonense. We congratulate M. Peeters on his success, and hope to hear more of this very interesting collection.

Here were four other Odontoglossum houses, with many plants of the usual kinds in flower, among which we noted the rare O. × stauroides, O. Hunnewellianum, and O. × Adrianæ; also a spike of O. crispum violaceum, with dark purple buds not yet expanded, O. crispum virginale, and O. luteopurpureum Vuylstekeanum. M. Peeters intends to cross the two latter together, and the result should be specially interesting, one being pure white, the other deep yellow without any brown markings.

Lastly we visited the old establishment, formed sixty years ago, and found a good collection of Cattleyas, Cypripediums, Oncidiums, Vandas, &c., a number being in flower, but we must pass them over in silence, our space being exhausted. We shall long remember our visit to this very interesting establishment.

PAPHIOPEDILUM × ROSSIANUM.

CAN Paphiopedilum × Rossianum occur as a natural hybrid? The query may at first sight seem absurd, seeing that the plant is an artificial hybrid between P. tonsum and P. barbatum, the one a native of Sumatra, the other of Malacca. But a flower from the collection of W. M. Appleton, Esq., of Weston-super-Mare, puts the question in another light. Mr. Appleton writes respecting it:—"I take it to be a natural hybrid between tonsum and barbatum. It came with some imported tonsums that I had three or four years back, but has not flowered before—that is to say this particular growth, for the larger part of the plant is tonsum." The flower certainly has the appearance of P. × Rossianum, the dorsal sepal showing traces both of the barbatum shape and colouring, while the upper margin of the petals is strongly ciliate, instead of being naked, the ciliæ ranging from one to two lines long. There are also a few warts on the upper margin—in short, the plant seems just intermediate between the two species, and in any case there is a difficulty in accounting for its origin. P. tonsum is known to be a native of Sumatra; where also P. Curtisii grows, though Mr. Appleton's plant bears no resemblance to it. But Sumatra lies parallel to the Malay Peninsula, where P. barbatum occurs, and the present discovery seems to suggest that somewhere P. tonsum and P. barbatum grow together. It would be interesting to know if plants of the latter have appeared among importations of P. tonsum. We know very little about the distribution of Malayan Orchids, and we may recall the fact that the habitat of Paphiopedilum superbiens is still unknown. We hope that some of our eastern collectors will try to clear up these doubtful points. R. A. R.

THE GENUS CHLORÆA.

THE species of Chloræa are handsome terrestrial Orchids, natives of Chili and the neighbouring parts of temperate South America, but very rarely seen in cultivation. It is therefore the more interesting to note that three of them are now flowering at Kew. They were collected by H. J. Elwes, Esq., during his recent trip to Chili, and have been grown in the Bulb pit. The species are C. virescens, C. crispa, and C. multiflora, and all of them were described by Lindley from dried specimens. They may be compared with Orchis or Disa in habit, but belong to the tribe Neottieæ, and structurally are nearly allied to Epipactis.

C. VIRESCENS has already appeared in cultivation, having flowered in the Birmingham Botanic Garden, in May 1845, when it was exhibited by Mr. Cameron at a meeting of the Horticultural Society. It was figured in the *Botanical Register* for that year (t. 49), when Lindley remarked:—"At length we have the satisfaction of producing a figure of one of those beautiful terrestrial Orchids which, under the names of Pichiquen, Gavilu, Azuzena, Pico de Loro, &c., are most charming ornaments of the subalpine pastures of the Cordillera of Chili." The species was, however, soon afterwards lost sight of. The Kew plant is rather over a foot high, and bears a fine spike of large bright yellow flowers, handsomely veined with green. There are also some green tubercles at the base of the petals, and a green thickened part at the lip of the lateral sepals. The lip is less strongly three-lobed than that shown in Lindley's figure.

C. CRISPA is a taller species, and has considerably larger flowers, which measure over 2½ inches across their broadest diameter. Their colour is pure white, with many very minute green dots on the side lobes of the lip and base of the petals. The lip is prettily fringed, and bears several fringed keels on the disc, while at the base of the column occurs a large orange and brown blotch. Two plants are in flower.

C. MULTIFLORA is about a foot high, and its flowers are less than half as large as the preceding. They are cream white, with a large, much-thickened green area at the apex of the lateral sepals, a few green tubercle-like dots at the base of the petals, and many more on the lip. On the latter they occur in five rows along the disc, with a few others on the side lobes. Of this two plants are in flower.

The species grow under somewhat peculiar conditions, and it is to be hoped that they will prove amenable to cultivation. Some of these plants came from the neighbourhood of Concepcion,but others were obtained at the Baths of Chillan, at about 6,000 feet elevation, where the beech forests clothe the mountains. Mr. Elwes states that the plants were obtained with some difficulty, the long fleshy roots being deeply buried in sand and

stones, among bushes and bamboos. The climate is generally dry, and the plants presumably grow and flower during the rainy season, and then have a long dry rest, for which the long and very fleshy Spiranthes-like roots are well adapted. There are several other plants at Kew, and possibly additional species may reveal themselves as they flower.

R. A. ROLFE.

EPIDENDRUM × BURTONI.

EPIDENDRUM × BURTONI is an extremely interesting hybrid, raised in the collection of F. M. Burton, Esq., Highfield, Gainsborough, from E. × O'Brienianum ♀ and E. ibaguense ♂, and also from the reverse cross. It was described at pages 73 and 135 of our seventh volume. Mr. Burton now sends six splendid inflorescences, to show how they vary in colour, and how much they have improved since the first flowers appeared. He remarks that they have been in flower for three months, and are now getting over; but in all those received there are still unopened buds, and the flowers make quite an imposing display, the four best inflorescences having each about fifty in fresh condition. The fact is that the individual flowers remain fresh for a considerable time, and owing to their opening in succession the heads remain in perfection for a long time. They are also excellent for cutting, and last a long time in water. All six forms are very handsome. The first may be described as deep rosy crimson; a second seems to fluctuate between rose and salmon colour, the latter when old; three others are varying shades of orange-scarlet; and the last is much darker, or what may be termed crimson-scarlet. There are also some slight variations in shape. The plants are of the easiest possible culture.

DENDROBIUM × MARGARET.

A DISTINCT and handsome hybrid from the collection of Frank A. Rehder, Esq., Gipsy Hill, S.E., was exhibited at the R. H. S. meeting on April 7th last, under the above name. It is said to have been sent, with several others, by a friend in Burma, some $3\frac{1}{2}$ years ago, and has now flowered for the first time. It is considered to be a natural hybrid, and Mr. Rehder remarks that from the shape of the bulbs it looks as if D. Findlayanum or D. Hildebrandii might be one of the parents, but various suggestions have been made as to its origin. It is best comparable with the natural hybrid D. × Pitcherianum, but differs in having a bright yellow disc to the lip. The general resemblance to D. nobile is so great as to render it almost certain that this species was one of the parents, and the other must have been paler in colour, with a bright yellow disc to the lip, and a consideration of all the

facts suggests D. Bensonæ as the most probable. Both D. Findlayanum and D. Hildebrandii have been crossed with D. nobile, yielding, respectively, D. × Cybele and D. × Ellisii; but neither of them agree with the present hybrid, while the hybrid with D. Bensonæ has, we believe, not been recorded. The sepals and petals are practically those of a light form of D. nobile, but the lip is much more like D. Bensonæ, being white, with a small purple tip, a bright yellow disc, and a broad band, maroon in colour, and consisting of confluent maroon lines, all round the claw. The latter character strongly recalls D. × Pitcherianum, but the band is broader and darker in colour. This, and the yellow disc, would be expected if D. primulinum were replaced by D. Bensonæ. The shape is compatible with such a cross, and it would be interesting to see the matter cleared up by experiment.

R. A. ROLFE.

THE HYBRIDIST.

BRASSOLÆLIA × ROLFEI.—This is a new hybrid from Lælia crispa ♀ and Brassavola Digbyana ♂, which has just flowered in the collection of the Right Hon. Joseph Chamberlain, M.P., Highbury, Birmingham, of which a flower has been kindly sent by Mr. Chamberlain, accompanied by the following note:—"I wish to call this hybrid Brassolælia × Rolfei, in compliment to Mr. R. A. Rolfe, and as a tribute to the work which he is doing for Orchidology. There is, I think, no doubt of the correctness of the parentage, as the flower had the crisp appearance of Lælia crispa, though now somewhat faded. It came to me as a young plant from Messrs. Charlesworth & Co." The flower has the general shape of the existing Brassavola Digbyana hybrids, and the lip is considerably fringed, and more crisp than usual, but the dark purple markings which form such a prominent feature in Lælia crispa have vanished, leaving the flower nearly white throughout, except for a little pale yellow on the lip's disc. Messrs. Charlesworth inform us that only a few seedlings were obtained, and this is the first which has yet flowered.

DENDROBIUM × CLARENSE.—An interesting and pretty little hybrid, raised in the collection of Sir Frederick Wigan, Bart., Clare Lawn, East Sheen, by Mr. Young, from Dendrobium Findlayanum ♀ and D. signatum ♂. The flowers bear a general resemblance to D. signatum, the sepals and petals being yellow, with a faint trace of pink at the tips, and the lip is also yellow at the margin, with a large orange-yellow disc, and a few crimson radiating lines on either side of the claw. The face of the column bears some maroon lines. The pseudobulbs also approach the pollen parent in shape. It is a floriferous little plant, and has probably not reached its full development.

A GROUP OF PHAIUS.

THE appearance of several very beautiful hybrid Phaius during recent years

FIG. 27. PHAIUS × NORMAN. 28. P. × WALLICHII (Sanderianus). 28a. P. × NORMAN. 29. P. × HAROLD. 30. P. SIMULANS. 31. P. × COOKSONI. 32. P. TUBERCULOSUS.

has brought the genus into the front rank for decorative purposes, and we have now the pleasure of reproducing a fine group of plants from the

celebrated collection of Norman C. Cookson, Esq., Oakwood, Wylam-on-Tyne, the photograph having been taken and sent to us by Mr. H. J. Chapman, Mr. Cookson's able gardener, together with the one shown on the present page, the whole forming a very remarkable series.

PHAIUS WALLICHII, the upper central figure (fig 28), is too well known to require description, and is readily distinguished from its allies by its rather long curved spur, which is well shown in the figure. The sepals and petals are tawny brown in colour, both back and front, and the lip

FIG. 33. PHAIUS × CLIVE.

white, with a yellow throat, and more or less purple staining on either side. It is rather widely distributed in the lower Himalayan zone, from Nipal to Assam and Burma, and is often cultivated under the name of P. Sanderianus.

P. SIMULANS, the lower central figure (fig 30), is a very beautiful Madagascar species, which for many years usurped the name of P. tuberculosus, on account of the great similarity between the flowers of the two species. The mistake was only detected when the true plant first flowered in cultivation, about two years ago (*O.R.*, ix, pp. 41-44, fig. 7).

It is epiphytic in habit, and a rather difficult plant to cultivate successfully.

P. × COOKSONI, the dwarf plant immediately to the right of P. simulans (fig. 31), is a very beautiful hybrid between the two preceding, which was raised in Mr. Cookson's collection, and flowered for the first time in 1890. In the rather open lip and obsolete spur it most resembles P. simulans, but in other respects has retained much of the character of the other parent. It was the first hybrid Phaius.

P. × NORMAN, represented in the upper right hand and left hand figures (figs. 27 and 28a), was raised in the same collection, and a batch of thirty plants was exhibited by Messrs. Charlesworth & Co. in March, 1898, two of them receiving First-class Certificates from the R.H.S., and a third an Award of Merit. It was derived from P. Sanderianus ♀ and P. simulans ♂, and thus is a variety of the preceding, for the identity of P. Sanderianus with P. Wallichii has since been established. It is very variable in colour, and its decorative value will be apparent from the figure.

P. × HAROLD, the two-flowered scape to the left of P. simulans (fig. 29) is a secondary hybrid, raised by Mr. Cookson, between P. Wallichii Sanderianus ♀ and P. × Norman ♂, which received an Award of Merit from the R.H.S. on March 24th last, and was described at page 121 of our last issue. The lip most resembles P. × Norman, and the spur is still very short, but in other characters the increased influence of P. Wallichii is obvious enough.

P. × CLIVE, the separate illustration on the preceding page (fig. 33), is another of Mr. Cookson's hybrids, raised from P. × Norman ♀ and P. simulans ♂, and thus completes the series, the primary hybrid having been re-crossed with both its original parents. It is a very handsome hybrid, but much nearer to P. × Norman, both in shape and colour, than to the other parent. It would be interesting to again cross it with P. simulans.

P. TUBERCULOSUS, shown in the right hand figure (fig. 32), is a Madagascar species, the original one described by Thouars, whose history has already been given (*O.R.* ix., pp. 41-44, fig. 7.) It was introduced to cultivation by M. Warpur about 2½ years ago. It differs from P. simulans in being terrestrial, and in certain floral details, which were previously pointed out, though the general resemblance is remarkable, especially in colour. It is also more easily cultivated, and should prove a valuable addition to the group, besides providing the hybridist with additional material to work with.

We hope to give a special note on the culture of these beautiful plants next month.

CALENDAR OF OPERATIONS FOR MAY.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

COOL HOUSE:—The temperature in this department should now be kept as low as possible, both night and day, for Cool-growing Orchids are much injured if grown too warm. The temperature must be kept down in the day-time by heavily shading. The blinds should always be raised six or nine inches from the glass, the power of the sun upon the glass being thus greatly reduced. No plant in this department should now be allowed to suffer from drought, but, on the other hand, avoid keeping the compost in a sodden condition. Give each plant a thorough watering when showing signs of becoming dry. A slight syringing overhead is advantageous after a warm, dry day, but for this purpose clear rain water is essential, and none other should be used. Ventilation in abundance should now be continually given. The damping down of the houses should now be done three times daily, and it should be done well, a good supply of hard water always being at hand for this purpose. There are several cool-growing species that will be in good condition for repotting this month. Among them are more of the Odontoglossum crispum type that have bloomed and are starting to grow. Then there are many of the cool-growing Oncidiums in a similar condition, such as O. macranthum, O. tigrinum, O. ornithorrhynchum, O. cheirophorum, O. varicosum, O. Forbesii, O. crispum, and any others that may be starting to grow. A suitable compost consists of two parts of leaf mould, one of fibrous peat, and one of chopped sphagnum moss; pot rather firmly, and surface over with a layer of chopped moss. Some of the smaller growing kinds of Masdevallia may also be repotted. This genus delights to grow in the coolest possible house during summer, but during winter the temperature should be a little higher: in fact the Intermediate House temperature is none too high. Too much damp and cold is the cause o the leaves dropping off or becoming spotted with black marks. The pretty little white autumn-flowering species, M. tovarensis, should now be attended to, and repotted if necessary, and also any of the others that have passed out of bloom. Masdevallias of the more showy type, such as M. Harryana, M. ignea, M. × Shuttryana, M. Veitchiana, and M. Shuttleworthii, are now making a brilliant show in this department, intermixed with Odontoglossums, Oncidiums, Epidendrum vitellinum, Ada aurantiaca, and the pretty Cochlioda Nœtzliana. No fire heat should now be required in this department.

INTERMEDIATE HOUSE.—The temperature in this department should now be as follows:—Day, with sun heat, 75°; without sun, 65° to 70°; night, 65°: morning, 60° to 65°. Shading will be necessary to keep down the temperature, and this department should be kept very moist by damping

down frequently. Although air cannot be supplied here in such volume as in the Cool House yet a little should always be kept on if possible, and no favourable opportunity for increasing the amount should be allowed to pass by. In short, try to keep the above temperatures with as much air as possible, always avoiding direct draughts on the plants. No heat from the hot water pipes should now be required here, unless it is during the night when cold or frost is expected, then a little warmth would be beneficial. Several things in this department will require repotting,—such for instance as the Odontoglossums of the grande type, some of the Miltonias, Oncidiums, Cymbidiums, and Lycastes. Trichosma suavis and Maxillarias should also be repotted, and other species which may be found to grow best here, always bearing in mind how very important it is to do each plant at the proper time, which is, as previously remarked, when making new growth from the base, and new roots are pushing forth. If done later a good deal of unnecessary exhaustion and shrivelling takes place. I would mention here how very important it is to experiment one's self with those plants which fail to grow freely from no apparent cause, and not to keep them too long in that house or position most generally advised, for different structures vary greatly, and certain peculiar conditions in one house may be lacking in another. It is therefore advisable to make experiments with refractory species, carrying out such experiments with due caution, and treating them to different houses, or to different positions in the same house; either warmer or colder; trying the cooler house or position first, as it is always well to know how low a degree of temperature the various plants will stand without injury. When this is once known their cultivation is simplified very considerably, for it may be taken for granted that if no injury is received by such a temperature the plants are benefited by it.

CATTLEYA AND MEXICAN HOUSES.—These should be kept at about the same temperature as the Intermediate House, of course allowing a higher degree by sun heat, as these departments will not require so much shade, especially the Mexican House. If any shading is applied here it should be very thin indeed; consequently, a good deal of ventilation is demanded during bright sunny weather, to keep the plant from burning, which should be avoided. In the last-named house such things as Mormodes, Cœlogynes, and some of the warm-growing Epidendrums, such as E. Parkinsonianum, E. nemorale, E. atropurpureum, and E. prismatocarpum, should, if not already repotted, be done without delay. This month will see another batch of the Cattleya house plants potted up or top-dressed according to requirements. These will include C. labiata, C. Harrisoniana, C. Loddigesii, C. Schrœderæ, C. Eldorado, C. Bowringiana, C. Lawrenceana, C. maxima, and any others if it is deemed necessary. Vanda suavis and V. insignis have just finished flowering, and will be done up by replacing the old

sphagnum moss with new. These plants should occupy a rather shady part of the house, as also should Aërides Fieldingii (now showing flower) and A. crispum.

EAST INDIAN HOUSE.—Temperature: Day, with sun, 88° to 90°; without sun, 75° to 80°; night, 70° to 75°; morning, 70°. Let these figures be maintained with a free admittance of fresh air. If the outside conditions are such as to prevent the ventilators being opened, it would be better to reduce the above by 5° degrees all round. Warmth from the hot water pipes will be required in these warm houses during night, and, perhaps, by day as well. The Dendrobiums, with the exception of D. Bensonæ, D. Parishii, D. crystallinum, D. Aphrodite (nodatum), and a few other late flowering kinds, are now all potted up and making new growth, and will henceforth delight in a good deal of heat and moisture, providing, as before stated, air is not denied them. There are but few Dendrobiums which can be grown in the Cool House, but D. Falconeri is one of them. It is now showing for bloom, and should receive more water. It grows well if fixed to a teak wood raft. During the summer, when making growth, it should be given copious supplies of water by being syringed several times daily, but during the winter it should have long intervals of absolute drought, until the spring, when the flower buds show. D. speciosum, an Australian species, is another that will grow well in the same temperature, as will also D. Jamesianum, and its near ally D. infundibulam. These two latter may be grown suspended in small pans.

The Phalænopsis may be now taken in hand. Those that require more root room should receive it at once, or if the material in which they are growing has become decomposed, it should be replaced with fresh. In removing the plant into larger baskets great care must be taken in separating the roots from whatever they may be clinging to, so as not to injure them. When well cultivated few Orchids are more admired than these, and they certainly deserve all the care that can be bestowed upon them.

CYMBIDIUM EBURNEUM still holds its own among first-class Orchids, and is deserving of the best position in the coolest and shadiest part of the Intermediate House, where it may remain all the year round. Plants that require more root-room should receive attention as they pass out of flower. The thick fleshy roots of this Orchid require a larger space to ramble in than is generally given; therefore it is necessary to use extra-sized, well drained pots. Use a compost consisting of one half good turfy loam and the other half fibrous peat and moss, to which may be added a little leaf mould and broken crocks, in sufficient quantities to keep the compost open and allow a free passage for water. Instead of elevating the soil above the rim pot, keep it at least half an inch below it. During the growing season give water freely, and at other times sufficient to keep the roots moist.

Cymbidiums do not appreciate dryness, either at the root or in the atmosphere, as it will cause loss of foliage, greatly to the disfigurement of the plants. The above remarks also apply to C. elegans, C. Mastersii, C. affine, C. aloifolium, C. ensifolium, C. chloranthum, and C. longifolium. C. Lowianum does not require such a large amount of pot room as C. eburneum, and when properly potted and looked after may remain undisturbed for many years, and will produce its long arching spikes more freely when kept in a pot-bound condition. An occasional dose of weak liquid manure will greatly benefit the plants when throwing up their flower spikes. C. giganteum, C. pendulum, and C. Hookerianum may be treated as advised for C. Lowianum. C. Devonianum produces its pendulous racemes from the base of the young growths, and should be grown in a basket suspended. All these Cymbidiums may be grown well along with C. eburneum.

Pleiones are now growing freely, being suspended in a sunny position in intermediate temperature. They are fond of plenty of water at the root, and should not be allowed to get dry; syringe them at least once a day. Sobralias are now showing for flower, and if at all pot-bound with roots will be helped by an occasional watering with weak liquid manure. The Anguloas will now be growing, and fast sending up their flowers, which, when fully developed, are both attractive and interesting. These plants may be re-potted either immediately they commence to grow, or when they have done flowering. Anguloas are free rooting plants, hence they should have considerably more material to grow in than the majority of Orchids require. Fill the pots half way up with clean broken crocks, then cover the drainage with a layer of moss, using as a compost two parts peat, one good fibrous loam, and the remainder chopped sphagnum. During active growth, and until the bulbs are thoroughly matured, give plenty of water, and an occasional supply of weak liquid manure will be beneficial. When growth is completed, gradually diminish the supply of moisture at the root, just enough being given to prevent undue shrivelling.

DENDROBIUM WILLIAMSONI AND D. CARINIFERUM.

DENDROBIUM WILLIAMSONI is a very imperfectly known species of the D. formosum group which has at last re-appeared in cultivation. It was described in 1869 (*Gard. Chron.*, 1869, p. 78), from a specimen which flowered in the collection of the late John Day, Esq., of Tottenham. Reichenbach described it as an ally of D. Draconis, having ivory-white flowers, and bearing a "grand three-lobed blood red spot" on the lip. It was sent from Assam by W. J. Williamson, Esq., Mr. Day's nephew, with other novelties. Then it was recognised (from description) among some

drawings sent to Kew from the Royal Botanic Gardens, Calcutta, and afterwards figured (*Ann. R. Bot. Gard. Calc.*, v. p. 6, t. 9). The plant was sent from the Khasia Hills, by Mr. Gallatly, and flowered at Calcutta in January, 1879. It now appears that Mr. Day kept an excellent drawing of the original type (*Day Coll.*, xiii, t. 77), and it is interesting to note that a plant which has just flowered with Mr. F. W. Burbidge proves to belong to the species.

Shortly after D. Williamsoni appeared, Reichenbach described another Dendrobium of the same group, namely D. cariniferum (*Gard. Chron.*, 1869, p. 611). It came from Moulmein, and flowered with Mr. Marshall, of Enfield. The author remarked that there were but two others with which it could be compared, namely D. xanthophlebium and D. Williamsoni, both having a bearded lip: the former at the base, the latter at the anterior part: but, he added, "neither of the two has such a thick, long callosity running over the whole disc and middle line of the lip." Mr. Day afterwards obtained a plant of it, and remarked:—"It is so like D. Williamsoni that if I were to draw it no one would perceive any difference." He then pointed out certain slight peculiarities, and among them that the spur of D. cariniferum, "is rather longer and more slender," finally adding "these species, if really distinct, do not vary more (if so much) than the Assam and Burmah varieties of Dendrobes often do, for instance, formosum, aureum, chrysotoxum. I believe they are the same."

In favour of the latter view, it may be noted that wild flowers of the form having a long slender spur, and labelled D. cariniferum, Rchb. fil.: Mann, Upper Assam," were found in the Herbarium of the late W. H. Gower, and Mr. Mann himself afterwards localised them as "Khasia Hills, 3000-4000 feet." so that the geographical difference fails. Mr. Mann afterwards sent a drawing labelled D. cariniferum, and localised "Nungkhlas [Nunklow], Khasia Hills, Assam, 4000 feet. May, 1870," which shows the short spur of D. Williamsoni. A specimen collected by Dr. Watt, at Sirohifurar, Manipur, "on oaks in open places at 5000-6000 feet." and labelled D. cariniferum, has also the characteristic short spur of D. Williamsoni.

The flowers of both forms have a strong aromatic fragrance, strongly carinate sepals, and the front part of the lip strongly hirsute, while the colour ranges from ivory white to honey-yellow, with the markings on the disc deep cinnabar red.

The late Major-Gen. Berkeley states that the species grow under much the same conditions of temperature, &c., as D. infundibulum. It may be added that D. cariniferum var. Wattii (*Bot. Mag.*, t. 6715) is a distinct species; D. Wattii, Rchb. f.

R. A. ROLFE.

ODONTOGLOSSUM PESCATOREI.

IN a very interesting note on Seedling Odontoglossums, given at page 42, Mr. W. Stevens alluded to a batch of seedling O. Pescatorei × cirrhosum, all of which had hitherto failed to show any trace of the pollen parent. Flowers of three of these seedlings have now been sent by Mr. Stevens. which fully confirm the remarks made. Two are very good forms of O. Pescatorei, one being pure white, with only a trace of the usual purple markings on the crest of the lip and base of the column; the other having the sepals strongly suffused with rose-purple, the petals less so, and the lip bearing three bright purple spots in front of the crest. The third is a small ordinary form, but we cannot find a trace of the influence of O. cirrhosum in any part of the flower. The cross should be repeated, as a different result would have been expected.

ORCHIDS AT THE GHENT INTERNATIONAL EXHIBITION.

THE fifteenth quinquennial international exhibition of the Société Royal d'Agriculture et de Botanique de Gand was held in the Casino of that city from April 18th to 26th, and was again a great success, though the weather was unusually cold for the season. The Orchids were housed in a special building, which had been provided for their accommodation, fitted with two central stages, and a broad stage all round the building, with a mirror behind, in which the exhibits appeared to be duplicated. This building was completely filled, and had all the classes furnished exhibits it is difficult to see where the plants could have been accommodated.

Three sections of the Jury were devoted to Orchids, as follows (taking them in the order of the official list) :—Section 2, Mr. J. O'Brien, President, Dr. Kranzlin, Secretary, and Messrs. de Barri Crawshay, du Trieu de Terdonck, and C. C. Hurst. Section 3, Mr. R. A. Rolfe, President, M. Duval, Secretary, and Messrs. J. Lambeau, A. Scalarandis, J. Heal, W. Stevens, A. Cogniaux, R. Martin Cahuzac, T. Pauwels, and D. Massange de Louvrex. Section 4, M. Linden, President, Dr. Pfitzer, Secretary, and Messrs. W. Thompson, G. Magne, and F. Lloyd. Curiously enough, the third section was just twice as numerous as the other two. Owing to the division of labour and the fact that there was little competition in some of the classes, the duties of the Jury were not very heavy. The following is a condensed report. Complete details would require more space than can be spared, and might become tedious.

The Gold Medal offered by His Majesty the King of the Belgians, for the best and most varied collection of Orchids, was won by M. Peeters, of Brussels, with a magnificent group of just over 200 plants, remarkable alike

for quality and good culture. It was generally considered to be one of the best groups ever brought together, and the Jury made the award with "*acclamations et felicitations.*" The group extended from the doorway to the end of the building, and for some distance along the end, so that it could not be seen from a single standpoint, but the annexed illustration (fig. 34)

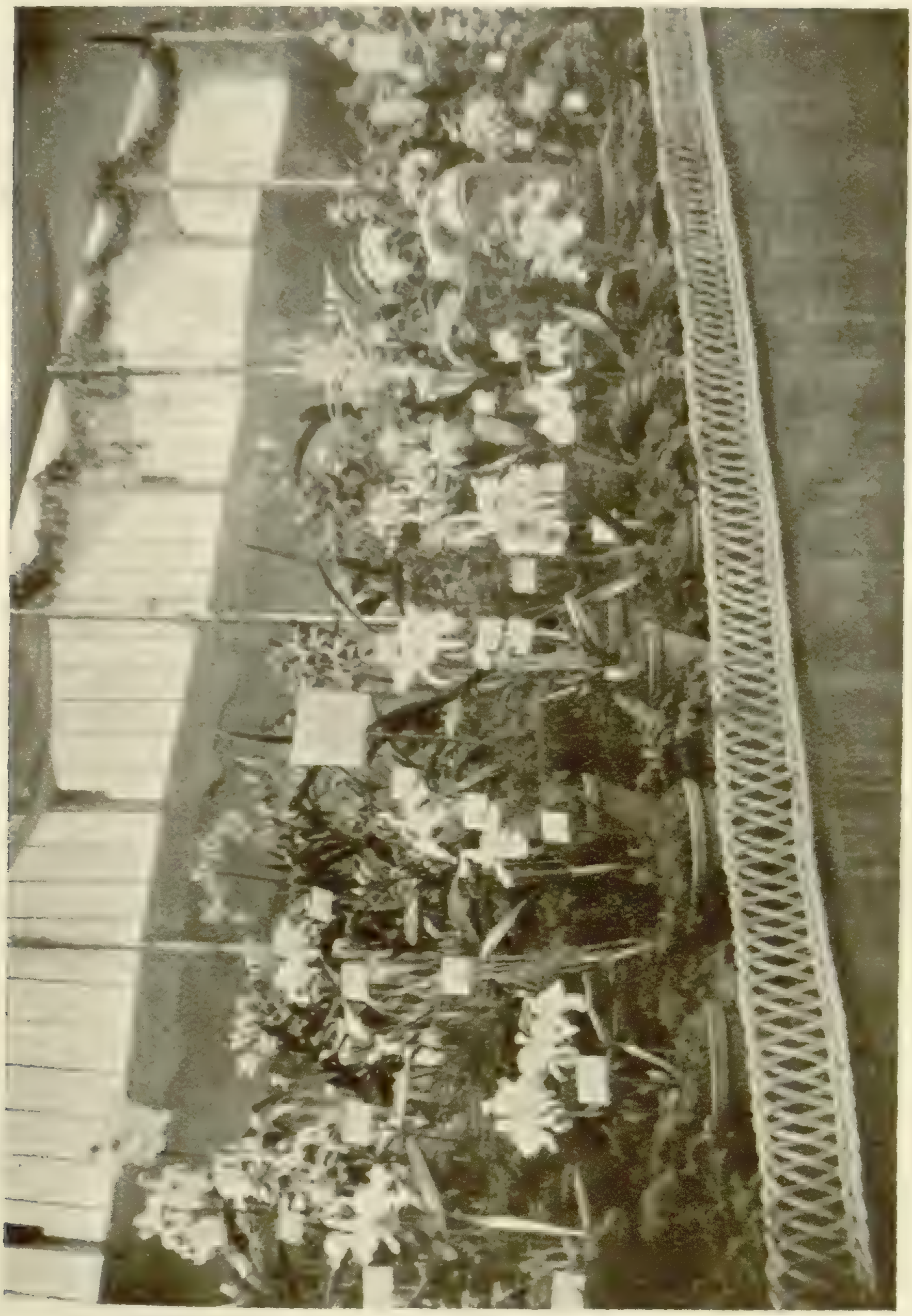

FIG. 34. PART OF M. PEETERS' GOLD MEDAL GROUP.

which represents about one-sixth of the group, will give a very clear idea of its arrangement. The group also received a Gold Medal from the Royal Horticultural Society of London, being one of three medals which the deputation sent by the Society were authorized to award to the three best exhibits in the show. To indicate the composition of such a group is

obviously impossible, and a selection is difficult where all were so good, but the following includes some of the more noteworthy, and it may be added that several things were represented by more than one example. Odontoglossum × Harryano-crispum bore a fine spike of 19 flowers, O. × Rolfeæ of 15 (the plant being one of four varieties shown), and O. × loochristiense 14. O. crispum violaceum was a beautiful rose-purple form, contrasting strongly with the chaste O. c. virginale, several other forms, together with the allied species and hybrids, being present. Of Lælio-cattleya × Choletiana two plants were shown, one, having two spikes of six flowers each, being shown in the left-hand top corner of our illustration. L.-c. × Mrs. John Leemann was represented by two beautiful plants, allied forms being L.-c. × Imperatrice de Russie, and L.-c. × Madame Chas. Maron. L.-c. × Kerchoviæ is a charming white hybrid derived from L. anceps and C. Trianæ alba, and L.-c. × Fanyauana, a richly-coloured thing from L. tenebrosa and C. Trianæ. Other fine things were two plants of Vanda cœrulea, Cymbidium Lowianum concolor with four spikes, C. Devonianum, Masdevallia Veitchiana with about fifty flowers, a good Epiphronitis × Veitchii, Miltonia × Bleuana, Phaius × Opoixii and × Norman, Zygopetalum × Perrenoudi, Mesospinidium vulcanicum with nine spikes, Epidendrum Stamfordianum, Miltonia Warscewiczii, a fine Dendrobium nobile Ballianum, with Oncidiums, Cypripediums, Cattleyas, both white and coloured, and various others too numerous to enumerate in detail; suffice it to say that Cattleya was represented by thirty choice forms, Cypripedium by 12, Lælio-cattleya by 17, and Odontoglossum by no less than 32, not including duplicates, and all of excellent quality.

The prize in the Nurserymen's class for the best and most varied collection of 100 Orchids went to M. Vincke-Dujardin, of Bruges, for a sterling group, including many good Odontoglossums, Oncidiums, Cattleyas, Cypripediums, and representatives of many other genera, those specially noted being a fine specimen of Ansellia confusa, Brassolælia × Gratrixiæ, Calanthe veratrifolia, Ada aurantiaca, Sophronitis grandiflora, a good example of Dendrobium nobile Ballianum, Odontoglossum polyxanthum, Cypripedium callosum Sanderæ, Oncidium Papilio, Masdevallia × Chelsoni, and others, which considerations of space compel us to omit. Cattleya Schrœderæ leodinensis was remarkable for possessing a large crimson blotch on the point of the lip, but was typical in other respects.

In the Amateurs class for the best 75 Orchids, the Gold Medal, value 200 francs, was gained by M. Lambeau, of Brussels, with a very beautiful group, in which we noticed fine examples of Masdevallia Veitchiana, Dendrobium nobile, and Cattleya Schrœderæ, the latter bearing 15 flowers, a good Lycaste Skinneri alba, some excellent Odontoglossums, in which one small and very yellow form of O. triumphans was remarkable, a good

Lælio-cattleya × purpurato-Schilleriana, the rare Galeandra Devoniana, the remarkable Liparis tricallosa, Trichopilia suavis with two racemes, Oncidium Forbesii, Cypripedium hirsutissimum, &c.

A similar class for Nurserymen brought two competitors, the first prize going to M. L. De Smet-Duvivier, of Mont-St.-Amand, and the second to M. Maurice Verdonck, of Gendbrugge. The premier group was excellent in every respect, and included some good Odontoglossums, among which O. × crispo-Harryanum, O. × Rolfeæ, O. Edwardi, O. Hallii, O. cirrhosum, and others, were conspicuous, also Maxillaria Sanderiana with five flowers, Masdevallia × Pourbaixii with 16, Mesospinidium vulcanicum grandiflorum with four spikes, Platyclinis glumacea with 25, Dendrobium thyrsiflorum with eight, Phaius × Norman, Lælia Jongheana, Miltonia Warscewiczii, Lycaste Skinneri alba, Cattleyas, Cypripediums, Oncidium sarcodes, Cavendishianum, and Gardneri, Lælio-cattleya × cinnabarino-Schroederæ, and various others too numerous to mention, both species and hybrids. In the second prize group we noted fine examples of Oncidium varicosum Rogersii, O. superbiens, Masdevallia ignea, Ansellia africana, Cattleya × calummata nobilior, C. citrina with four flowers, a fine Dendrobium nobile, D. Jamesianum, the finely fringed D. Brymerianum, D. chrysotoxum, D. atroviolaceum, Epidendrum Allemanii, Arpophyllum giganteum, Chysis bractescens, Lycaste Skinneri alba, Odontoglossum × Adrianæ, O. mirandum, a very good O. × Andersonianum, Vanda tricolor, Cypripediums, &c.

For a collection of 50 Orchids (Nurserymen) the prize went to M. E. Praet, of Mont-St.-Amand, with an excellent group, comprising good examples of Dendrobium Wardianum, Odontoglossum Pescatorei with five spikes, O. triumphans, Cattleya × Parthenia bearing a raceme of five fine flowers, a good C. Mendelii and others, Oncidium concolor, O. Gardneri, O. Marshallianum, O. Forbesii, O. varicosum Rogersii, Angræcum sesquipedale, Zygopetalum crinitum, Brassolælia × Gratrixiæ, Miltonia Warscewiczii, Masdevallia coccinea Harryana with over sixty flowers, &c., all the plants being well grown and flowered.

In the Amateurs' class for 30 Orchids the first prize went to M. O. Fanyau, of Hellemmes-Lille, and the second to Madame L. de Hemptinne, of Gand. The premier group contained, among others, a well flowered example of Zygopetalum × Perrenoudi, Cattleya × calummata with eleven flowers, a fine Cymbidium Lowianum, Lælio-cattleya × Choletiana with two fine spikes, a good example of Masdevallia ignea, Odontoglossums, &c., while the more remarkable plants in the latter group were a fine example of Vanilla planifolia, bearing a cluster of nine pods, a good Cymbidium Lowianum, Phaius × Marthæ, a fine Dendrobium nobile, some good Odontoglossum × Adrianæ, and others.

The corresponding prize for Nurserymen fell to M. Vincke-Dujardin, of Bruges, whose group contained good examples of Phalænopsis amabilis, Dendrobium thyrsiflorum, Miltonia vexillaria, M. Warscewiczii, M. cuneata, some good Masdevallias, &c., the whole collection being in fine condition.

For thirty Cool Orchids M. Vincke-Dujardin also secured the first prize, the group containing some fine Odontoglossums, among which a good O. × cuspidatum was noted, also examples of Cœlogyne cristata alba, Restrepia striata, and the usual spring-flowering species.

The class for the best collection of hybrid Orchids also brought only a single competitor, M. Peeters, of Brussels, whose group would have taken some beating. It contained beautiful examples of Cattleya × calummata, × Louis Chaton, × resplendens, Lælio-cattleya × Choletiana, × highburiensis, × Kerchoviæ, eximia, × Mrs. John Leemann, × Imperatrice de Russie, × Fanyauana, Lælia × Latona, flava, × purpurato-Digbyana, Epiphronitis × Veitchii, Miltonia × Bleuana, Odontoglossum × bellatulum, × Rolfeæ, and several others, Phaius × Norman and Opoixii, Zygocolax × Veitchii, Zygopetalum Perrenoudi, &c., some of them in several examples.

The Silver Medal offered for the best generic hybrid was gained by M. De Bievre, gardener to His Majesty the King of the Belgians, Laeken, with Lælio-cattleya × Prince Leopold, a hybrid from Lælia cinnabarina and Cattleya quadricolor (chocoensis), in fine condition.

The prize for the best collection of Guatemalan and Colombian Orchids went to M. Verdonck, of Gendbrugge, whose group contained Ada aurantiaca, Epidendrum atropurpureum, and Pelexia olivacea, with about ten species of Odontoglossum, six of Oncidium, three each of Cattleya and Miltonia, and two each of Lycaste and Masdevallia. Of the rarer kinds may be mentioned Oncidium leucochilum and O. maculatum.

The Nurserymen's class for 25 species of the Cypripedium group brought three competitors, M. Pynaert, of Ghent, being placed first, M. Maes-Braeckman, of Mont-St.-Amand, second, and Messrs. Janssens and Putzeys, of Merxem, Antwerp, third. The more noteworthy plants in the premier group were C. callosum Sanderæ, C. insigne Sanderæ, a good C. × Sallieri Hyeanum with six flowers, C. hirsutissimum with five, C. × Thompsoni-Rothschildianum, C. × aureum virginale, and C. × nitens Sanderianum, but the majority were both well grown and flowered. In the second group we noted good examples of C. × Harrisianum violaceum, C. × Fascinator, C. × regale, a good C. × Sallieri, C. villosum grandiflorum, and C. aureum virginale; and in the third group, C. Argus Moensii, C. × Goweri, C. Lawrenceanum with fifteen flowers, C. × Mephisto, C. × Madame Osterrieth (superbiens × callosum), C. × Mrs. E. G. Uihlein, and

C. × Boxvillo (Boxallii × villosum), with the dark dorsal sepal of the former, and the rest of the flower more like C. villosum aureum.

For fifteen Cypripediums M. Pynaert was the only exhibitor, and gained the first prize with the following: C. Druryi, exul, villosum, Boxallii, callosum, Curtisii, Lawrenceanum × Lathamianum with 17 flowers, and seven other hybrids.

For ten hybrid Cypripedes obtained since 1898, the prize went to Messrs. Janssens & Putzeys, of Antwerp, with an interesting little group, though a few of them were only forms of older hybrids.

In the Amateurs' class for the best group of Cattleyas and Lælias, the Gold Medal went to the Marquis de Wavrin Villers-au-Tertre, of Ronsele, who staged a very beautiful group, the more noteworthy being a fine Lælio-cattleya × Choletiana, L.-c. × Pittiana, L.-c. × callistoglossa, L.-c. × Lucia, L.-c. × eximia, a well-coloured hybrid between Lælia pumila and Cattleya superba, most like the former in shape; several good forms of Cattleya Trianæ, the pretty C. × Parthenia gratissima, some good C. Mendelii and C. Schrœderæ, and Lælia × Mozart.

The corresponding class for Nurserymen went to M. Vincke-Dujardin, of Bruges, whose group was largely composed of good forms of Cattleya Mossiæ, Mendelii, Trianæ, and Schrœderæ, several of the latter being very beautiful.

The Gold Medal offered for the best collection of white Cattleyas and Lælias also went to the Marquis de Wavrin, *à l'unanimitie et par acclamation*, the group including beautiful examples of Cattleya intermedia Parthenia, C. Mendelii alba, C. Trianæ alba, C. Schrœderæ alba, Lælio-cattleya × Kerchoviæ (L. anceps alba and C. Trianæ alba), and others.

In the Amateurs' class for 20 Cattleyas and Lælias the second prize was awarded to Madame L. de Hemptinne, of Gand, in whose group we noted some good C. Schrœderæ, C. Mendelii, C. Skinneri and C. Schilleriana.

A class for the best 50 Odontoglossum crispum brought two competitors, M. Vincke-Dujardin, of Bruges, and M. T. Pauwels, of Meirelbeck, the prizes going in the order named, though the competition was rather close.

For the best 30 Odontoglossums the same two exhibitors also competed, M. Vincke again being first with a fine representative collection, in which, however, Cochlioda Nœtzliana seemed rather out of place, though the judges allowed it to pass. We noted a very good O. Pescatorei album, also O. × excellens and O. × cuspidatum, besides fine forms of O. × Adrianæ and O. × Andersonianum. M. Pauwels' group was also very good, containing most of the kinds previously mentioned, also the rare O. tripudians, O. Reichenhemii, O. Insleayi, and O. grande.

In the class for 12 Vandas there was only a single exhibit, that of M. Vincke-Dujardin, to which the second prize was given.

For the best Cattleya, Madame L. de Hemptinne, of Gand, secured the first prize.

The class for the best Cymbidium brought two competitors, who staged C. Lowianum, the first prize going to M. J. H. Tromp-Meesters, of Steenwyk, Holland, and the second to M. J. de Hemptinne, of St.-Denis-Westrem, the former staging a noble specimen with 13 spikes.

In the class for the best Lycaste a fine specimen of L. Skinneri, bearing 20 flowers, was staged by M. A. Boelens, of Ledeberg, to which the first prize was given.

In the class for the best Oncidium a fine plant of Oncidium Marshallianum, bearing three panicles of flowers, was staged by M. E. Praet, of Mont-St. Amand, and in that for the best Dendrobium a good D. Wardianum, but we do not find the records in the official list of awards. There was also a well grown and flowered specimen of D. nobile from someone, which seems to have been completely overlooked.

A special prize, consisting of a Silver-gilt Medal, was given to L'Horticole Coloniale, Brussels, for a group of well grown and flowered Vanda tricolor.

Other interesting additional exhibits which we noted were Lælio-cattleya × Bievreana (L. crispa × C. Rex), and Cymbidium × eburneo-Lowianum Bievreanum, from M. de Bièvre, gardener to His Majesty the King of the Belgians, Laeken; and a pretty Lycaste from M. E. Pourbaix, supposed to be a natural hybrid from L. Skinneri and L. Deppei.

Orchids were also used with great effect in the classes set apart for floral decorations, one exhibit being particularly noteworthy, namely the one with which M. de Brie, of Paris, secured the first prize for a basket of Orchid flowers. It was a very light and graceful device of Odontoglossums, Oncidiums, Cattleyas, Phalænopsis, Vandas, &c., so arranged as to nearly hide the light bamboo framework.

Two Gold Medals, value respectively 100 and 50 francs, were offered for the best Orchid house, complete with heating apparatus, the first prize being won by M. Ch. Buss, of Ghent, with a thoroughly modern structure, having a very neat arrangement by which the side ventilators can all be opened together, either very slightly or to their full extent.

The number of classes in which there was no exhibit was remarkable, being as many as 50 out of a total of 76 (52 are vacant in the official list). And the character of these classes was curious. It may not seem remarkable that prizes for six novelties of recent introduction, also for three and one, should fail to secure an entry, but what shall be said when it applies also to such subjects as the best new Cypripedium not yet in commerce, the best Cattleya or Lælia, or the best new hybrid of any other genus? Coming to groups, we find the Amateurs' classes for 100 and 50

Orchids vacant, but corresponding classes for Nurserymen are filled. But prizes for 15 strong examples, to Amateurs and Nurserymen alike, went a-begging, in spite of the offer of a Williams Memorial and other Medals. Classes for a group of the most numerous species, for 20 and 10 Cool Orchids, both for Amateurs and Nurserymen, for groups of Brazilian, Mexican, and Indian Orchids, for 10 Anœctochilus, for 12 Dendrobiums, 12 Masdevallias, 12 species of the Aërides and Angræcum group, for 20 hardy Orchids, and for a group of Phalænopsis, were all vacant. Among Cypripediums we find blanks in the Amateurs' classes for 25 and 15, but not in the corresponding classes for Nurserymen. For 20 Cattleyas and Lælias, however, it is the Nurserymen's class that is vacant. Among Odontoglossums there are blanks in the class for 15, both Amateurs and Nurserymen, and for the best six O. crispum. There now remain classes for single examples of Aërides, Angræcum, Anguloa, Calanthe, Cœlogyne, Cypripedium (!), Disa grandiflora, Lælia, Masdevallia, Miltonia, and M. vexillaria, Odontoglossum crispum, Phalænopsis, Saccolabium, Sobralia, Stanhopea, Trichopilia, Vanda, Zygopetalum, and, lastly, any other genus, not one of which produced a single exhibit. It is also curious that on this occasion there was not a single English exhibitor.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of this Society was held at the Drill Hall, Buckingham Gate, Westminster, on April 7th, when there was a very fine display of Orchids.

J. Colman, Esq., Gatton Park, Reigate (gr. Mr. Bound), was awarded a Silver Flora Medal for a very fine group, containing Cochlioda Nœtzliana, Diacrium bicornutum, Cymbidium eburneum, C. Lowianum concolor, Cœlogyne cristata alba, Phaius × Norman, Lycaste Skinneri alba, L. S. delicata, Cattleya intermedia alba, and some good Odontoglossums.

Sir Trevor Lawrence, Bart., Burford, Dorking (gr. Mr. White), received a Silver Banksian Medal for a fine group, chiefly of botanical Orchids, including Maxillaria luteo-alba, three plants of Angræcum fastuosum, Pleurothallis Grobyi, Cirrhopetalum fimbriatum, Bulbophyllum siamense, Epidendrum Endresii, E. × elegantulum leucochilum, E. Ellisii, Masdevallia caudata xanthocorys, M. xipheres, which received a Botanical Certificate, four forms of M. × igneo-Estradæ, M. × Geleniana, and M. × Veitchiano-Wageneri, to which an Award of Merit was given.

Capt. G. L. Holford, C.I.E., Westonbirt, Tetbury (gr. Mr. Alexander), staged a fine group, principally Odontoglossums, to which a Silver Banksian Medal was given. It contained some good O. crispum, O × Andersonianum Holford's variety, O. Pescatorei, with very large flowers, O. × Adrianæ Lady Wantage, having a branched spike of twenty, pale yellow,

heavily-spotted flowers, which gained both an Award of Merit and a Cultural Commendation; together with Miltonia Roezlii, the fine Lælio-cattleya × callistoglossa excelsa, L.-c. × Gottoiana, with six flowers, a fine Cattleya Schrœderæ, and others.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), gained a Silver Banksian Medal for a good group of Odontoglossums, well arranged with plants of Sophronitis grandiflora and Ferns. An Award of Merit was given to O. triumphans Crawshayanum.

H. T. Pitt, Esq., Rosefield, Sevenoaks (gr. Mr. Thurgood), received a Silver Banksian Medal for an effective group, containing some very fine forms of Odontoglossum crispum, including O. c. Persimmon, which gained a First-class Certificate, and O. c. Alpha, which obtained an Award of Merit. The former was an exceptionally large form, the flower measuring $4\frac{1}{2}$ inches across, with all the segments broad, white, and bearing a number of reddish-purple spots; the latter was a large white form closely spotted with brown, somewhat resembling O. c. Stevensii. O. × Adrianæ and Cattleya Schrœderæ twickenhamensis were also shown. Cypripedium × Mrs. Pitt (Godefroyæ leucochilum × nitens) received an Award of Merit.

F. A. Rehder, Esq., Gipsy Hill (gr. Mr. Norris), showed a fine example of Dendrobium nobile Ballianum, with 67 flowers, which gained a Cultural Commendation, and the natural hybrid D. × Margaret, having the flowers white, tipped with rose.

W. P. Burkinshaw, Esq., Hessle, near Hull (gr. Mr. Barker), showed the large Lælio-cattleya × Digbyano-Mossiæ Hessle var., a large and handsome form.

J. S. Moss, Esq., Bishop's Waltham, exhibited a curious form of Odontoglossum × Adrianæ.

Baron Sir H. Schröder, The Dell, Staines (gr. Mr. Ballantine), showed a series of cut spikes of Odontoglossums, including fine O. crispum, O × Adrianæ, the rare O. liliiflorum, O. Schillerianum, and others.

G. Singer, Esq., Coundon Court, Coventry (gr. Mr. Collier), showed a good Odontoglossum × Adrianæ.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Gilbert), showed a fine white example of Cattleya intermedia nivea, having the lip tinged with pink.

Sir F. Wigan, Bart., Clare Lawn, East Sheen (gr. Mr. Young), exhibited Cattleya Trianæ Amesiana and C. Lawrenceana Hyeana, both very good.

Messrs. J. and A. A. Macbean, Cooksbridge, received a Silver Banksian Medal for a fine group of well-grown Odontoglossums.

Messrs. Charlesworth & Co., Heaton, Bradford, showed a very fine group of hybrids, including Lælio-cattleya × Mercia (L. flava × C. Schrœderæ), L.-c. × Haroldiana, L.-c. × Dora (Phœbe × Sanderiana), a

bright yellow form of Lælia × Briseis (harpophylla × purpurata), Cattleya × Empress Frederic Heaton variety (Mossiæ × aurea), and Cypripedium × Berkeleyanum (bellatulum × Boxallii).

Messrs. J. Veitch & Sons, Chelsea, showed Dendrobium × Aspasia pallidum and D. × Wiganiæ grandiflorum.

Messrs. Stanley, Ashton & Co., Southgate, showed Odontoglossum Cervantesii roseum.

AT the meeting held on April 21st there was a smaller display of Orchids, but some good things were seen.

R. W. Hudson, Esq., Danesfield, Marlow (gr. Mr. Gibson), staged a group of finely-flowered Dendrobiums, to which a Silver Banksian Medal was awarded.

W. M. Low, Esq., Wellesbourne House, Wellesbourne (gr. Mr. Liney), gained a Silver Banksian Medal for a fine group of well-flowered Dendrobium nobile.

N. C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), showed Odontoglossum crispum Jeanette, and Dendrobium × Venus grandiflorum, a very large and handsome form, which gained a First-class Certificate.

J. Colman, Esq., Gatton Park, Reigate (gr. Mr. Bound), exhibited a good Acineta Humboldtii, having the flower deeply spotted with purple.

Capt. C. C. Hurst, Burbage, Hinckley, exhibited a fine example of Lælio-cattleya × Hyeana magnifica.

R. I. Measures, Esq., Camberwell (gr. Mr. Smith), showed Cypripedium × Harri-exul (Harrisonianum × exul), most like the latter in shape, but tinged with purple.

H. T. Pitt, Esq., Stamford Hill (gr. Mr. Thurgood), showed Lycaste × Balliæ Rosslyn variety.

F. Wellesley, Esq., Westfield, Woking, showed the fine Lælia × Iona nigrescens.

Messrs. Charlesworth & Co., Heaton, Bradford, gained a Silver Flora Medal for a fine group, including Miltonia × Bleuana grandiflora, Cattleya Schrœderæ cœrulea, Brassolælia × Digbyano-purpurata, Lælio-cattleya × G. S. Ball, L.-c. × Mozart, with six flowers, the fine L.-c. × Dora magnifica (L.-c. × Hippolyta Phœbe × C. Schrœderæ), to which an Award of Merit was given; L.-c. × highburiensis, L-c. × Mercia, Odontoglossum × Harryano-triumphans, O crispum Lilian, and other Odontoglossums.

Messrs. H. Low & Co., Bush Hill Park, received a Silver Banksian Medal for a good group, including Miltonia Roezlii, M. R. alba, Cypripedium Lawrenceanum, Odontoglossum Hallii, O. Harryanum, Cattleya intermedia nivea, Dendrobiums, &c.

Messrs. J. Veitch & Sons, Chelsea, showed two remarkable hybrids, one called Lælia × Digbyano-purpurata Duke of Connaught, a large rosy variety, and the other Cypripedium × Little Gem (× Harrisianum ♀ × Baron Schröder ♂). The flower is of good shape, the dorsal sepal white, flushed with rose, and bearing feathered chocolate-purple lines, the petals broad and somewhat similar in colour, and the lip purple-brown. The plant is at present small, but is likely to develop into a handsome thing.

Mr. J. W. Moore, Cragg Royd Nurseries, Rawdon, Leeds, showed two good Odontoglossum crispum.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

A meeting of this Society was held at the Coal Exchange, Manchester, on March 19th, when a fine display of Orchids was seen.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), received a Silver Medal for a fine group, in which some fine plants of Lælia Jongheana were prominent.

Dr. Hodgkinson, The Grange, Wilmslow (gr. Mr. Woore), showed Lælio-cattleya × Noel (Cattleya Trianæ alba × Lælia harpophylla), a fine deep orange-coloured hybrid, which received an Award of Merit.

A. Warburton, Esq., Haslingden (gr. Mr. ~~G. Cypher~~), showed a well flowered form of Odontoglossum crispum Victoria-Regina, having the flower heavily blotched with red-brown, which received a Vote of Thanks.

Mr. P. Weathers, Old Trafford, received an Award of Merit for a good form of Odontoglossum crispum.

Messrs. Charlesworth & Co., Heaton, Bradford, staged a magnificent group, to which a Silver Medal was awarded. It included Brassolælia × purpurato-Digbyana (F.C.), Lælio-cattleya × Myra (F.C.), L.-c. × Dominiana (A.M.), L.-c. × luminosa aurifera (A.M.), Odontoglossum × Harryano-triumphans (F.C.), O. crispum variety (A.M.), and others.

Messrs. J. Cypher & Sons, Cheltenham, staged a good group of Dendrobiums, to which a Bronze Medal was given. The more noteworthy forms were D. × Lutwycheanum (A.M.), D. nobile Heathii (A.M.), D. n. Purity, and other choice things.

Messrs. J. Cowan & Co., Gateacre, showed Dendrobium Wardianum ochroleucum, D. Harveyanum, which gained a Botanical Certificate, and D. × Wiganianum album (A.M.)

Messrs. A. J. Keeling & Sons, Westgate Hill, Bradford, showed Dendrobium × Ainsworthii Woodhatch variety, and D. × A. amœnum, having pure white sepals and petals (A.M.)

Mr. John Robson, Altrincham, showed the richly coloured Odontoglossum triumphans var. grande, which gained an Award of Merit.

Mr. S. Allen, Sale, staged a small group, and was given a Vote of Thanks.

Mr. W. Holmes, Timperley, also received a Vote of Thanks for a fine selection of cut flowers, chiefly Dendrobes.

Messrs. Hugh Low & Co., Bush Hill Park, showed the interesting Odontoglossum × tentaculatum.

THE first April meeting was held in the Gardens, Old Trafford, in conjunction with the Spring Show of the Royal Botanical and Horticultural Society of Manchester, and an excellent show of Orchids was the result.

E. Ashworth, Esq., Wilmslow (gr. Mr. Holbrook), staged a splendid group of choice things, in which Dendrobiums prodominated, some two-hundred plants being included. A Gold Medal was awarded.

S. Gratrix, Esq., Whalley Range (gr. Mr. G. Cypher), received a Silver-gilt Medal for a choice group, in which a noble Lycaste Skinneri alba and some good Odontoglossums were conspicuous. O. crispum var. Captivation received an Award of Merit, and Dendrobium × Gratrixiæ (parentage unknown) a First-class Certificate.

J. Leemann, Esq., Heaton Mersey (gr. Mr. Edge), also received a Silver-gilt Medal for a group of splendidly-flowered Dendrobium × Venus; also a First-class Certificate for Lælio-cattleya × luminosa nigrescens, and an Award of Merit for L.-c. × Lucia (L. cinnabarina × C. Mendelii).

O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), received a Silver Medal for a good group, chiefly of Dendrobes and Cypripedes.

W. J. Crossley, Esq., received a Cultural Certificate for a fine Dendrobium nobile Cooksonianum.

Messrs. John Cowan & Co., Gateacre, received a Gold Medal or a fine general collection; also a First-class Certificate for Cattleya Schilleriana Gateacre var.

Messrs. J. Cypher & Sons, Cheltenham, also received a Gold Medal for a fine group, in which Dendrobiums and good forms of Cattleya Schrœderæ and Odontoglossum crispum were conspicuous.

The Stone Orchid Co., Stone (gr. Mr. F. Stevens), received a Gold Medal for a fine group of well-grown Odontoglossums. O. × Adrianæ Babette gained a First-class Certificate.

Messrs. Charlesworth & Co., Bradford, received a Silver-gilt Medal for a choice group, in which Phaius hybrids were conspicuous. Cattleya Schrœderæ Minerva and Lælio-cattleya × Mercia each received an Award of Merit.

Mr. W. Holmes, Timperley, received a Silver Medal for a small but choice collection of Dendrobiums.

Messrs. Hugh Low & Co., Enfield, received a Bronze Medal for a small group; also a First-class Certificate for Cattleya Trianæ Rajah, and an Award of Merit for C. T. aurantiaca.

Bronze Medals were also awarded to Mr. S. Allen, Sale, and Mr. W. B. Upjohn, Worsley, for groups; also an Award of Merit to Mr. J. Robson, Altrincham, for Cattleya Mendelii aurea.

ODONTOGLOSSUMS FROM NEWCHURCH.

A VERY beautiful series of Odontoglossums is sent from the collection of R. Ashworth, Esq., Ashlands, Newchurch, near Manchester, by Mr. Pidsley. It includes the beautiful O. sceptrum Masereelianum, in which the markings are deep yellow on a paler ground; O. × Andersonianum Edithæ, heavily marked with red-brown on a light yellow ground, which is more or less suffused with rose; a fine form of O. Pescatorei; a richly coloured O. triumphans; four forms of O. Cervantesii, of which the variety decorum differs from the others in having the lip prettily spotted with brown; and some very pretty forms of O. × Adrianæ and O. crispum. The three varieties of O. × Adrianæ are very distinct, one having a light yellow ground and numerous small dark brown spots; a second nearly white, with fewer and larger spots of dark purple brown; and the third, called Prince Leopold, is light yellow, heavily blotched with deep red-brown. On the sepals the markings are confluent into very large blotches, which only leave a few irregular bands of the ground colour, and the upper half of the petals is almost monopolised by one large irregular blotch. It is very handsome.

There are a dozen fine forms of O. crispum, several of them being named. O. c. meleagris is a very pretty form, with rose-pink ground colour, and many small brown spots on the segments. O. c. Andromeda has a single large red-brown blotch on the centre of the petals, and from one to three similar ones on the sepals. In O. c. General Hunter there are from nine to twelve partially confluent red-brown spots on each segment, rather regularly distributed. Opposed to this regularity in the markings we find three others, of the Trianæ set, in which the blotches are confined to the sepals and lip, leaving the petals white, two of these being very fine in form and substance. Two others have the blotches confined to the lip, one being almost comparable with O. × waltonense except in colour. O. c. Berenice is a pretty light blush, rather copiously spotted form, the sepals being rather more rosy than the other segments, and the spots on the petals generally much smaller. O. c. Zempelonia is a very puzzling form, having numerous red-brown spots, very regularly arranged on the segments, as in O. × Adrianæ, but with the crispum shape and colour. Lastly must be mentioned O. c. Lady Primrose, a sulphur yellow variety, having a tinge of rose in the sepals, and a few minute brown dots on the lip only, but the true crispum shape, crest, and column wings. It is very beautiful, but its exact origin, as also that of the one previously mentioned, is somewhat uncertain.

ORCHIDS IN SEASON.

TWO very handsome Orchids are sent from the collection of the Right Hon. Joseph Chamberlain, M.P., Highbury, Birmingham, by Mr. Mackay. Lælio-cattleya × highburiensis is represented by a magnificent inflorescence of eleven flowers, in which the rich purple colour of Cattleya Lawrenceana completely monopolises the lip, and largely preponderates in the petals, while the sepals are light buff with a slight suffusion of purple. Cattleya Schrœderæ highburiensis is a sturdy inflorescence of three light blush-pink flowers, whose petals measure three inches across, and the lip has a light purple area round the orange-coloured disc, while the margin is beautifully undulate. It is one of the most beautiful forms of the species.

An interesting group comes from the collection of J. J. Neale, Esq., of Penarth (gr. Mr. Davy), including a nice inflorescence of Vanda Denisoniana, the coral red Rodriguezia secunda, Dendrobium fimbriatum oculatum, and Xylobium squalens, a plant rarely met with in cultivation; also flowers of Paphiopedilum hirsutissimum, P. barbatum and its variety Warneri, P. × delicatulum, a fine Oncidium Papilio, Cattleya citrina and C. Forbesii, Phragmipedilum × Sedeni, Masdevallia caudata, Sobralia Warscewiczii, and Cœlogyne speciosa. The latter, Mr. Davy remarks, flowers with them nearly all the year round. The Rodriguezia was received from a friend in Panama only two months ago.

Several beautiful flowers are sent from the collection of E. J. Lovell, Esq., Oakhurst, Oxted, by Mr. Jones, including Dendrobium superbum, some fine D. Wardianum, D. Findlayanum, D. × Ainsworthii roseum, and several good forms of D. nobile, showing a considerable range of variation in size and colour. Miltonia Roezlii alba is represented by a very beautiful flower, while of the genus Odontoglossum there are good examples of O. triumphans, O. gloriosum, several nice forms of O. crispum varying from white to rose, and a light form of O. × Adrianæ, the latter having been out for over six weeks. Four flowers out of an importation of O. crispum are sent, to show the kind of variation one sometimes gets when buying these imported plants, namely white and rose coloured forms of O. crispum, the former only spotted on the lip and the latter on the sepals, a light yellow slightly spotted form which looks as if it had some gloriosum "blood" in it, and the Bogota form of O. triumphans. The flowers are well grown, and collectively form a most effective little group.

A beautiful clear white form of Odontoglossum crispum is sent from the collection of W. Farrer, Esq., Leyburn, Yorks, by Mr. Carnell, together with a good Dendrobium nobile, and two large forms of Cattleya Mossiæ, one having the segments pale blush, and the other rose-pink, with the front lobe of the lip beautifully veined with crimson in front of the yellow disc.

MENDEL'S PRINCIPLES AND ORCHID HYBRIDS.

AT the meeting of the Scientific Committee, held on March 24th, the following communication from Captain C. C. Hurst, F.L.S., was read :—The additional facts, presented by Mr. Chapman at the last meeting, respecting the hybrid Calanthes "Sibyl" and "Oakwood Ruby," are very valuable and interesting, and show still more clearly the application of the Mendelian Principles to Orchid hybrids. The fundamental principles of Mendel are three, viz. :—(1) The purity of the Dominants (D), (2) The purity of the Recessives (R), and (3) The impurity of the D.R'S. In the case of the Calanthe hybrids in question, according to Mr. Chapman's own facts, each of these three Mendelian principles is illustrated, viz. :—(1) In the bulb (of C. × "Oakwood Ruby") the shape and general structure resembles C. rosea, *i.e.*, *a pure Dominant*; (2) The flowers of C. × "Sybil" are pure white, *i.e.*, *a pure Recessive*; (3) The flowers of C. × "Oakwood Ruby" are "dark coloured," having been gradually intensified by selection of the darkest forms (D.R.'s) through four or five generations, *i.e. impure D.R.'s.*

With regard to the hybrids C. × Veitchii and Paphiopedilum × Leeanum, which Mr. Chapman says he has raised true from seed, and which he believes are therefore exceptions to "Mendel's Laws," allow me to assure him that such well-known cases are not at all inconsistent with the Mendelian Principles. As I showed in *Journ. Roy. Hort. Soc.*, xxvi, 1902, pp. 688-695, the hybrid P × Leeanum *in each single character* varies between its parents, P. insigne and P. Spicerianum, in every degree of blending, forming a perfect series of forms. So that if A represents P. insigne, and B represents P. Spicerianum, the *apparent* result in P. × Leeanum is 1 A + 2 A B + 1 B. According to Mendel's Principles, if P. × Leeanum is self-fertilised the actual result is apparently the same, viz. :—1 A + 2 A B + 1 B. So that one can quite understand Mr. Chapman's self-fertilised hybrids coming *apparently* true from seed. The real difference between P. × Leeanum and its own offspring is, of course, that according to the Mendelian Principles, in the latter case the A's and B's would breed pure in the next generation, while in the former case the A's and B's would breed impure A B's, though on the surface both would appear to be the same.

Many other interesting problems are suggested by Mr. Chapman's facts. It seems possible that the weak constitution of C. × "Oakwood Ruby" might be due to the correlated "bulb structure" being a pure Dominant, *i.e.*, C. rosea (a well-known miffy subject), rather than to the intrinsic effects of inbreeding, as suggested by Mr. Chapman. But space will not allow these matters to be followed up here, and I propose, with Mr. Chapman's kind assistance in the way of material, to examine these Calanthe hybrids in detail when they flower again, and report the results.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, during May, on the 5th and 19th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The great Annual Show will be held in the Inner Temple Gardens, Thames Embankment, on Tuesday, Wednesday, and Thursday, May 26th, 27th, and 28th, and a number of Silver Cups and Medals will, as usual, be awarded, according to merit. The Orchid Committee will meet at 11 a.m. Entries should be posted to the Secretary on May 18th, except in the case of single plants for Certificate, which may be entered as late as May 21st. We notice that one of the Rules for the Show stipulates that "all plants must be named."

The Manchester and North of England Orchid Society will hold a meeting at the Coal Exchange, Manchester, on May 7th, when the Committee will meet at 11.30 a.m. This completes the Society's year, and the Annual Meeting will be held in the afternoon of the same date.

A curious inflorescence of Cœlogyne cristata is sent from the collection of Joseph Broome, Esq., Sunny Hill, Llandudno, which at first sight seems to combine the varieties Lemoniana and alba, for the five upper flowers belong to the former, but the lower one is pure white throughout. A closer examination, however, of this flower shows that the lip is entire, acute, and without the keels in front, though the hairs are present on the lower half, but rather less numerous than in the normal flowers. The sepals, petals, and column are quite normal, and the lip evidently owes its peculiarity to the partial suppression of the staminodial appendages which assist in the formation of the normal lip.

ORCHID SALE IN MANCHESTER.—A sale of a private collection of Orchids took place on March 12th at the Horticultural Rooms of Messrs. Artingstall and Hind, Limited, Manchester, and realised a large sum. The collection belonged to Mr. A. Y. Lees, of Stretford, who is giving up the hobby on account of his leaving the district. The chief feature was the sale of two plants of Cattleya Mendelii alba, very distinct specimens, one of which was sold to Mr. Samuel Gratrix for 105 guineas. The other, a portion of the same plant, was sold for 49 guineas.—*Journal of Horticulture.*

The *Journal of the New York Botanical Garden*, in a note on some recent additions to the Library of that Institution, includes among "notable periodicals" now in complete files on its shelves, the following works treating solely of Orchids:—*Lindenia*, *The Orchid Review*, *Journal des Orchidées*, and *L'Orchidophile*.

ORCHID PORTRAITS.

CATTLEYA × MARONI.—*Journ. Hort.*, 1903, i, p. 287. with fig.

CYMBIDIUM × EBURNEO-LOWIANUM VAR. CONCOLOR.—*Gard. Mag.*, 1903, pp. 219, 223, with fig.; *Carden*, 1903, i, pp. 250, 251, with fig.

CYMBIDIUM HOOKERIANUM.—*Gard. World*, 1903, pp. 293, 296, with fig.

CYMBIDIUM × LOWGRINUM.—*Gard. Mag.*, 1903, pp. 219, 235, with fig.

CYPRIPEDIUM INSIGNE SANDERÆ.—*Gard. World*, 1903, pp. 296, 301, with fig.

CYPRIPEDIUM × PITCHERIANUM WILLIAMSII.—*Journ. Hort.*, 1903, i, p. 309, with fig.

EULOPHIELLA PEETERSIANA.—*Garden*, 1903, i, p. 263, with fig.

ODONTOGLOSSUM × ADRIANÆ VAR. SWOBODA.—*Garden*, 1903, i, p. 250, with fig.

ODONTOGLOSSUM CRISPUM VAR. GRACE RUBY.—*Gard. Mag.*, 1903, p. 152, with fig. VAR. PERSIMMON.—*Garden*, 1903, i, p. 273 with fig.; *Gard. World*, 1903, pp. 347, 359, with fig.

PHAIUS × COOKSONIÆ.—*Journ. Hort.*, 1903, i, p. 353, with fig.

PHAIUS × MARTHÆ.—*Rev. Hort. Belge*, 1903, p. 73, with plate.

PHALÆNOPSIS AMABILIS RIMESTADIANA.—*Rev. Hort. Belge*, 1903, pp. 88, 89, fig. 22.

SOBRALIA LEUCOXANTHA.—*Journ. Hort.*, 1903, i, p. 331, with fig.

ZYGOPETALUM CRINITUM CŒRULEUM.—*Gard. Mag.*, 1903, pp. 152, 153 with fig.

CORRESPONDENCE.

(Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.)

J. W., Rotherham. Odontoglossum crispum crossed with O. Rossii majus (or perhaps the other way about) should yield a very interesting hybrid if you can get the seedlings up. Good forms should always be selected. The imported O. crispum is an ordinary form; the other should be better when well-grown. O. triumphans is quite typical. B is O. Rossii; C, O. R. rubescens; A, O. R. majus, and 2, a good ordinary Rossii. The name O. Rossii majus can only be applied to large forms of the species.

A. L. J. Odontoglossum × Adrianæ is remarkably variable, and a few forms which approach O. crispum are difficult to distinguish. There is a suspicion that secondary hybrids may occur. A comparison with O. Hunnewellianum and O. crispum will show the intermediate characters. The broad petalled Dendrobium nobile should be taken special care of.

J. C. The named varieties of Cattleya Mossiæ are legion, and we regret that we do not recognise those sent. The rosy one is the best, shape and color being good.

W. D. The Epidendrum is not yet identified.

Several notes and articles are unavoidably postponed through pressure on our space.

Photographs received, with thanks. H.J.C., A.D.

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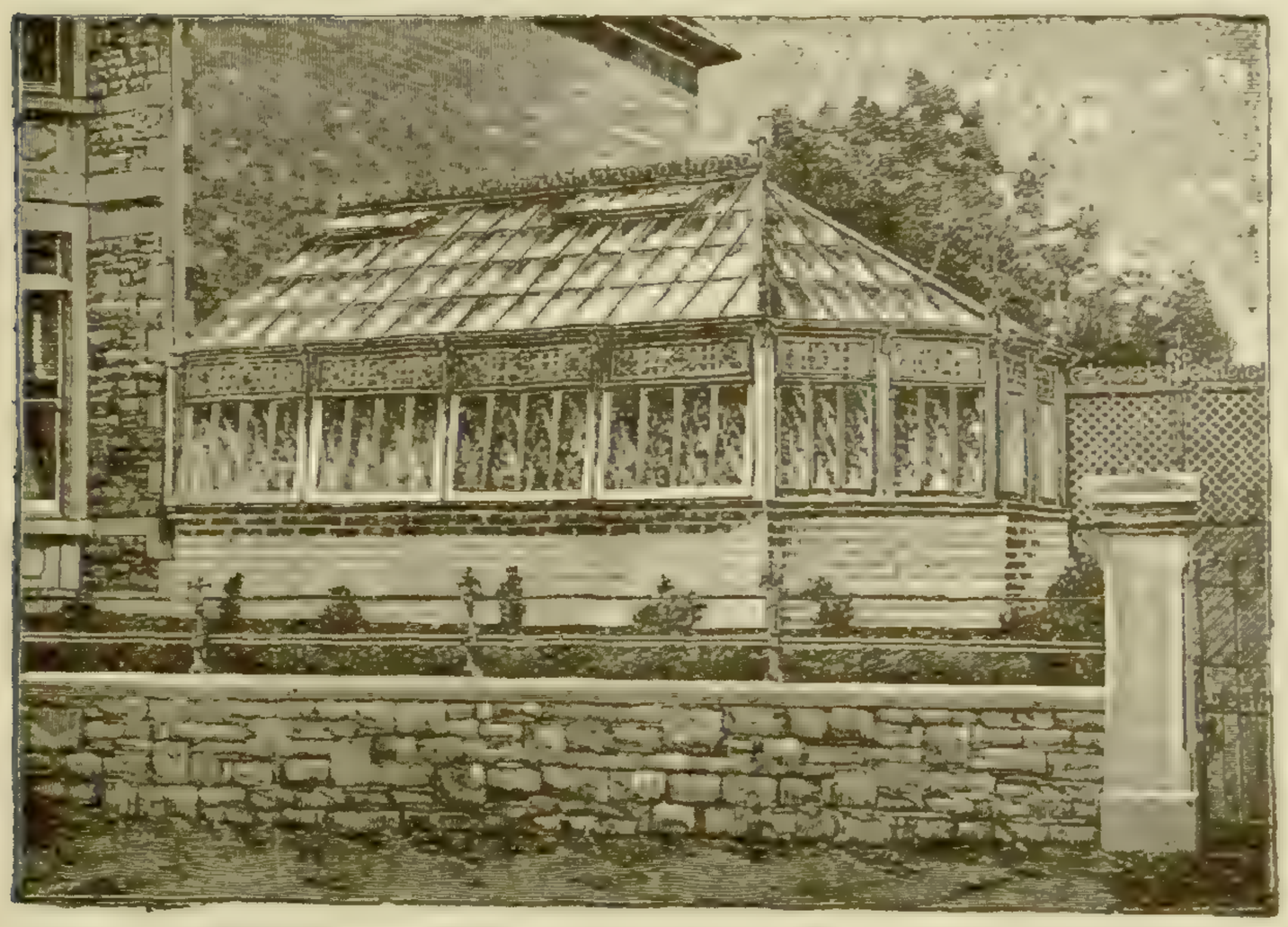

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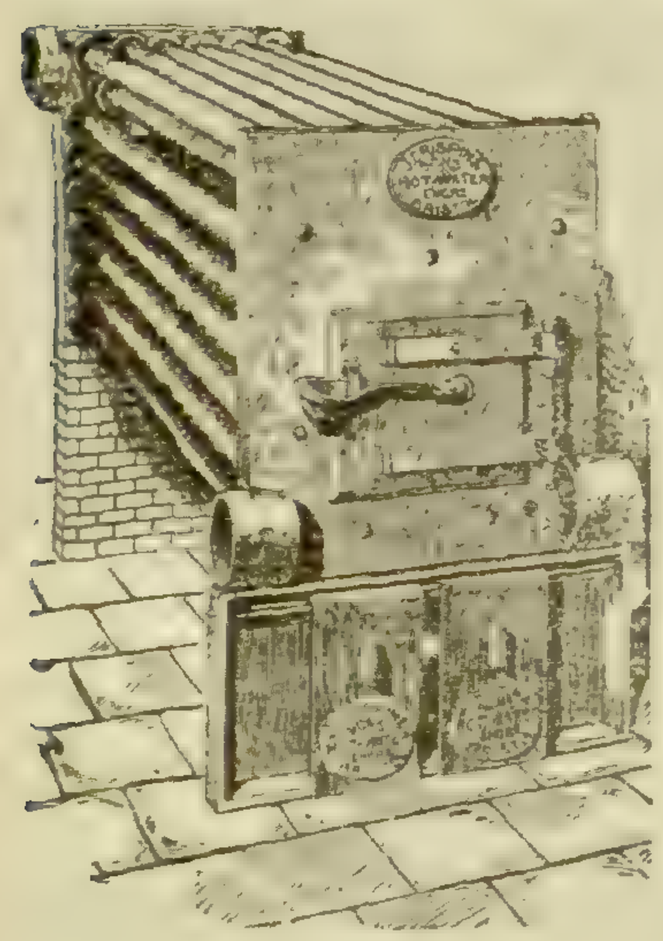

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DIES ORCHIDIANI.

CAN nothing be done to relieve the monotony of the Temple Show? I do not allude to the great similarity of arrangement from year to year, but to the general all-alike character of the different groups. All, or nearly all, are miscellaneous groups, with nothing to break the general monotony. A group of Cattleyas and allies only, or Odontoglossums, or hybrids of recent years, would be a positive relief, and it would be a very simple matter if it were taken in hand properly. Under existing circumstances, if a grower is interested in any particular group or genus, or if he wants to get some idea of, let us say, progress in hybridisation, he must wander round the whole of the Orchid groups, picking out the subjects, here, there, and anywhere, and even then he is pretty certain to overlook something, while anything like comparison is out of the question.

There was one brilliant exception to this condition of things, and that was the beautiful group of Vanda teres from the collection of Leopold de Rothschild, Esq. I am not discussing the question of culture—though that was excellent—but simply that of arrangement. Just recall for a moment the effect of that group, and then imagine how different it would have been if the plants had been distributed through the various groups staged. They would have been completely lost in the sea of Cattleyas, Odontoglossums, and miscellaneous subjects generally, without any compensating advantage, and it illustrates my meaning admirably. Here was something on which the eye could rest with pleasure, and the same may be said of a few large specimen plants, notably of Cattleya Skinneri and Cymbidium Lowianum, which were present. Two similar effects were also produced within a larger group by massing together a number of hybrid Phaius, and of Lælio-cattleya × G. S. Ball, and they caught the eye in a way that would have been impossible had they been scattered throughout the groups.

One could scarcely avoid making a comparison with the recent Ghent Show, where the conditions in several respects are so different, and wondering what the effect would have been if the wealth of material exhibited at the

Temple had been available at Ghent, and subject to the classification existing there. And there is the further possibility that such a schedule in England would have drawn other exhibitors. A list of unfilled classes at Ghent was given at page 151, but a considerable number of them could have been filled to overflowing from the Temple exhibits. The fact is that, apart from the different local conditions in the two countries, the Ghent Show was too early for many Orchids, and, owing to the lateness of the season, we heard of some choice varieties of Odontoglossum crispum that were intended for the Temple Show, but could not be got out in time. As it was, it was a remarkably fine show, but the material might have been arranged to better advantage under other conditions.

A surprise was in store for some of the exhibitors at the Temple, in the shape of an issue of the Lindley Medal. It is evidently a forgotten honour, for I heard enquiries as to its value and significance, which recalled a discussion which took place when the Victoria Medal of Honour was instituted some five years ago. It was summarised by me at the time (*O. R.*, v., pp. 154, 155). The Lindley Medal was instituted in commemoration of the invaluable services rendered to horticulture in general and the Royal Horticultural Society in particular, by the late Dr. Lindley, and was to be given preferentially for excellence in cultivation. This Medal seems to have been singularly unfortunate. It appears that in 1867 it was awarded to Mr. Philip Parkes for an exhibit of three Phalænopsis Schilleriana, at South Kensington. Shortly afterwards Mr. G. Eyles wrote that the Medal was in preparation and might be expected in the course of a fortnight. Seven years later Colonel Davenport wrote that when the distribution of Lindley Medals took place the exhibitor should not be overlooked, a promise repeated a year later; but thirty years afterwards it had not arrived. And the writer sorrowfully added—"I have long given up any hope that may have lingered through many years that the promises of the secretaries will be redeemed. Still, I may be pardoned in desiring to know whether others actually received the Medals?"

The late Mr. James Anderson seems to have had a similar experience, with two splendid examples of Odontoglossum grande sent up from Meadow Bank at about the same time, both having branched panicles, one with sixteen, the other with fifteen flowers, of extraordinary size and development. But he never received the Medal, and he concluded by saying that "the Lindley Medal ought not to be lost among horticultural honours." To which I added, "it certainly deserves a better fate." Let us hope that the discussion has borne fruit. At all events five Lindley Medals were awarded for groups of Orchids at the recent Temple show, and we may

hope that the event opens a new chapter in the history of the coveted distinction. The news will interest Mr. Parkes if he is still living.

The further information about raising seedling Odontoglossums given at page 131 is interesting, and it is quite evident that the difficulties formerly encountered are being gradually overcome. I also noticed several artificially raised seedlings at the Temple show, and it may be added that four out of the seven Odontoglossums which gained awards had been raised by hand. The next few years will probably witness a great development in this department.

ARGUS.

ORCHIDS: BY MR. F. W. MOORE.

THE closing lecture for the session of the Irish Gardeners' Association was given by Mr. F. W. Moore, Curator of the Royal Botanic Garden, Glasnevin, the subject being "Orchids," and a report appears in a recent issue of the *Irish Farming World*. The lecturer remarked that a great many people thought Orchids were air plants. Air and water was the pabulum on which the Orchid could no more support its framework than any other plant. When they considered the existence of plant life and this question, they should remember that there were mineral matters in every plant. In this connection they had also to note that Orchids contained ten of the essential elements of plant life. No plant could live, grow, and thrive without containing these important constituents. They included oxygen, hydrogen, nitrogen, and potash. Nitrogen is obtained by the Orchid in the form of ammonia. We find the leaves acting as feeders. Nature was in no way wasteful, and made special provision for this. Some Orchids grow in the forks of trees, and obtain their sustenance from the decayed leaves. The air, too, conveyed to the plant a certain amount of animal matter. There was the constant death of insects, which acted as fertilisers. Mr. Burbidge grew his Orchids successfully on bones, because in the bones there was a good supply of lime and other mineral matters. In cultivating Orchids it is impossible to keep them alive without these materials. There was one other fact to be borne in mind. This was that though present in only very small quantities, sometimes not more than five in every hundred and sometimes even as low as two per cent., yet if one of these elements was missing the plant would be lacking in perfection.

They had heard a good deal about the cultivation of Orchids in leaf mould. This was a new thing, and was not the first new thing that had been sprung upon Orchid growers. The leaf mould system was undoubtedly very good, but in the course of nature the Orchid, while it took advantage

of leaf mould, did not get its food in a tightly packed pot where there was little chance of the air getting in. If Orchid growers went in for new fads they should do so with caution, otherwise their efforts would be attended with disaster. There was an extreme intimacy between Orchids and animal life as represented by insects. Orchids that grow on the earth and Orchids that grow on the plants and fruit trees and shrubs were widely distributed. Their habitat covered a wider area than seemed to be imagined. We get them from the North ; from such places as Norway and Sweden. They were also found within 30° of the North parallel and 35° of the South. Another home of Orchids was between 12° North and South of the Equator. Outside the 12° we find them on certain mountains and hills in India. Again in South America, in the Andes of Chili and Columbia, they were to be found in abundance, while they were also to be found elsewhere—in China, Africa, Japan, and India.

It is from South America that we obtain the best Orchids we have. There were many romances that might be related of the adventures experienced by collectors of Orchids. Some Orchids were known as "Lost Orchids," or, as Mr. Moore playfully put it, there were some Orchids which remained as they were before they were discovered.

Then, on the other hand, some new varieties were brought home in the packing of other plants, but the difficulty with many was that of getting them imported. He then had his numerous illustrations thrown on the screen, commencing with a few of epiphytic and terrestrial Orchids. Passing on to the structure of the plants, Mr. Moore pointed out how the leaves of the different varieties were formed so as to represent what the plants need in the way of food. The formation of the leaf showed whether an Orchid required more or less water and sunshine, and this was a point that ought to be studied closely. Mr. Moore then alluded to the functions of the roots, and how they work in taking up manure. Leaving roots, Mr. Moore went on to discuss the stems of the plants, after which he dealt with the branches and flowers. Orchids should be grown under conditions as nearly alike to nature as possible. He then dealt with the flowers and fruits, both of which, as he pointed out, possessed important functions. He also showed slides illustrating the development of the Orchid from the seed till two years of age. The curious part of the thing is that an Orchid seed takes about three years four months to develop. Mention was also made of the fact that Darwin's theory of the importance and dependence of certain flowers and plants on certain insects had long been verified. This he illustrated by relating an instance where an Orchid some distance out of its natural habitat became sterile through not being fertilised by a certain insect. A vivid description was then given of the means by which Orchids were pollinated.

ORCHIDS AT MOORTEBEEK.

FIVE years ago we made the acquaintance of the Orchid establishment of Messrs. Lucien Linden & Co., at Moortebeek, then about two years old, and the recent Ghent Show afforded an opportunity of renewing it. The houses are arranged in a compact block, running right and left of a central corridor, seven on each side, about 25 yards long, and connected by the half-span system.

The central house or corridor is over 100 feet long by 22 feet wide, and contains a large number of Cattleyas and Lælias, in splendid health, arranged on an open stage, with a raised path along the centre. On either side of this path we observed a row of seedlings, arranged many together in hanging baskets, and also a fine lot of Lælia anceps and other things suspended from the roof.

On entering the first Odontoglossum house on the left we found the plants in the most robust health, and it may be interesting to describe the conditions under which they are grown, and the method of treatment. The seven Odontoglossum houses, on one side of the central corridor, have the common roof supported on pillars, the divisions only descending to some four feet from the ground, thus allowing a free circulation of air throughout, and also, by stooping a little, an uninterrupted view of the plants from end to end of the block. The plants are grown in a compost of polypodium fibre and sphagnum, and are kept in as small pots as possible. The stages are, of course, open, and there is a constant circulation of air, which is kept as moist as possible. Each alternate house has a tank under the stage for the reception of rain water, which alone is used, and this tank can be reached from every pathway. Many of the plants are also stood upon specially constructed saucers, having a raised centre, on which the pots are placed, and a broad channel all round, which is kept full of water, and thus protects the plants from the attacks of slugs, &c. These saucers seem to be much appreciated, for M. Linden stated that a further large consignment had been ordered. Some of the pots were also placed in baskets, and suspended over the paths. The paths are of shingle, which absorbs plenty of water, while remaining perfectly clean on the surface.

Seven of these Odontoglossum houses were successively entered, the plants everywhere being in perfect health, and many of them showing remarkable vigour. Owing to the late season there was not very much in bloom, but vigorous spikes were pushing up everywhere, and among those actually in flower we noted several good forms of O. crispum and O. × Andersonianum, O. × Coradinei, O. luteopurpureum, O. gloriosum, O. sceptrum, and a very yellow form of O. triumphans. A form of O. crispum having the leaves white at the margin was also interesting.

The block of houses on the other side of the corridor contained a more varied assemblage, and we will take them in the order of our notes. The first house, like several of the others, was divided into three compartments, and here we found a large number of choice seedling Cattleyas and allies, also Phalænopsis amabilis, and others, in thriving condition. Seedlings of a few remarkable crosses were pointed out, and among them Epidendrum vitellinum × Cattleya Warneri, also the reverse cross, Ansellia africana × Cattleya Mendelii, and Phalænopsis violacea × Spathoglottis Vieillardii. It will be curious to note the results when they reach the flowering stage, for the genera in two cases belong to such distinct groups that one would not expect them to hybridise together.

Another house contained a lot of Dendrobium nobile in flower, also numerous Cattleyas and Lælias, including a batch of C. Dowiana aurea in excellent condition; also fine batches of C. granulosa and C. amethystoglossa, with Miltonias suspended from the roof. Here we noted the rare Cattleya aurantiaca in flower, and some good Lælio-cattleya × Schilleriana.

Entering the next house we saw a particularly fine batch of Cypripedium Lawrenceanum in the most robust health, both leaves and flowers being remarkable for their fine development. C. callosum Sanderæ was also very good, and among numerous others in flower we noted C. Victoria-Mariæ, C. exul, some good C. hirsutissimum, and numerous hybrids, the more remarkable being two plants in flower from C. Victoria-Mariæ × C. insigne, and several plants of C. Chamberlainianum × œnanthum, together with the reverse cross. We were also much interested in examining two seedlings from Miltonia vexillaria × Odontoglossum crispum, now of good size, and unmistakably showing characters derived from both parents. We hope to see the flowers when they appear.

The next two houses were devoted to Cattleyas, and included a lot of C. Mendelii and C. Schrœderæ, several of the former being in flower and the latter in bud; also some C. Gaskelliana, two of which showed fine double breaks. There were also many C. Mossiæ in bud, including the varieties Reineckeana and Wageneri, and a lot of choice varieties of various kinds in robust health, but not in flower.

Another house contained a fine lot of Cypripedium insigne, also various Odontoglossums, some good O. × Adrianæ being in bloom, also a good O. crispum with a spike of sixteen flowers. Here we saw a nice batch of seedling Odontoglossums close to the roof, including some raised by intercrossing choice spotted forms of O. crispum, whose flowering will be awaited with interest. We noted also the brilliant Cochlioda Nœtzliana and vulcanica in flower, with a few other things.

Odontoglossum hybridising is evidently going ahead, here, as elsewhere,

for in one small compartment we counted 145 capsules just on the point of maturity, all of them the result of intercrossing choice varieties. It was a most interesting sight, and if only a small proportion of the seeds germinate something remarkable should result. We believe that something further could have been shown to us, for we heard rumours of something more behind, of seeds sown on canvas, &c., &c., but we had not time to note down all that we saw, and shall not go further into what was a matter of hearsay only. M. Linden and his able manager, M. Van Cauwenberghe, have certainly attained something near perfection in the culture of their plants, and the chief factors of success they believe to be—aëration, the careful regulation of water at different periods of growth, proper treatment during the resting period, and a suitable temperature. Other details, such as the nature of the compost and character of the receptacles, are considered to be of secondary importance, and, in view of the diversity of opinion and practice among successful growers as to some of the latter details, we fully concur in this opinion.

CATTLEYA × THAYERIANA.

AN illustration showing a house of seedling Cattleyas raised by Mr. E. O. Orpet, in the collection of E. V. R. Thayer, Esq., South Lancaster, Mass., U.S.A., is given in *American Gardening* for February 28th last (p. 138, fig. 32), accompanied by an interesting note on Cattleya × Thayeriana, and the Compost question, by Mr. Orpet, part of which is reproduced here.

A note which appeared that Cattleya × Thayeriana was about to flower freely, induced Mr. Orpet to count the number of growths that are now flowering or are about to flower this spring. "By actual count there are 157, the number of plants being about fifty. Many of them flowered during last October and November, and will do so the coming weeks, for we find that seedling Orchids frequently flower twice a year, and it is often possible here to decorate a dinner table with this Cattleya alone—a circumstance not duplicated elsewhere.

"The parentage of this cross is C. intermedia × C. Schœderæ, the former parent producing quantity and the latter giving breadth to the parts, the lip being always of fine proportions. The largest number yet seen is seven flowers on the spike, and the colour being of a uniform delicate pink, sometimes almost white, with a tinge of violet purple on the lip; often it is present, as in the variety superba, in the form of an inverted V-shaped blotch of colour.

"The seed was sown in April, 1897, and many of the plants now occupy sixteen-inch pots or pans, some of which have six growths to flower soon, and the vigour of these cannot be appreciated unless seen. This

vigorous growth, however, is present in more or less degree in all seedling Cattleyas or Lælias. . . . . .

"The only debatable ground Orchid cultivators now have seems to be the question of material in which to grow them, and discussion will certainly continue for some time to come. Under different hands equally skilled the same excellent results appear to have been attained with widely different materials.

"One grower asserts that he has every reason to be satisfied with the use of a mineral substance or fibre with not a particle of vegetable matter in it, and by its use sick plants were made well and thrifty.

"Our experience with fifty plants potted in half fermented leaves was that forty-eight retrogressed and the other two made strong growths, which they would have done undoubtedly whatever the material. The balance will need a year at least to regain that which was lost—nearly all their roots.

"We never use for Cattleyas and Lælias anything other than sound Osmunda fibre, and those who have seen the plants here agree that nothing could excel the vigour of the plants so treated. If it were possible to have living sphagnum over the surface of the material it would, perhaps, be desirable; but certain properties contained in the water here make it impossible to have sphagnum live and grow among the potting material.

"With Osmunda fibre it is seldom indeed that a plant becomes overwatered, and this is the source of about all the trouble Orchids give us, apart from insect pests. In hot weather the plants may be deluged overhead daily, preferably in the evening, for then the moisture is conducted to the tender, absorbent tips of the roots; these in the morning may be observed as quite mucilaginous, owing to the quantity of water taken up during the night, and conducted to the proper source in the genial air and warmth of the day, building up strong, fat bulbs that promise a fine display at their respective seasons of bloom.

"A number of years ago Mr. Wm. Matthews, of Utica, N. Y., a pioneer in Orchid culture, advised spraying in the evening. We were at that time in a receptive stage, and, practising it, soon had reason to wonder why the progress of the plants should be so marked, and the conclusion arrived at is as given above. It is advisable only when root action is taking place, and not when the plants are resting, though when in cold weather strong fire heat is used we water late in the day to counteract its evil effects.

"The foregoing remarks are merely suggestions, and are given because they helped, in fact, made, the conditions under which it was possible to raise and grow the seedling Lælias and Cattleyas that are here, and of which the best are yet to bloom."—E. O. ORPET.

ODONTOGLOSSUM CRISPUM: SPECIMEN PLANT.

A SPECIMEN plant of Odontoglossum crispum is a comparatively rare sight, but such a one appeared at the R.H.S. meeting on May 5th last. from the collection of Captain Holford, Westonbirt, Tetbury, and was deservedly awarded a Cultural Commendation. It carried six spikes and an aggregate of 128 flowers, or an average of over 21 flowers each. We are

FIG. 35. ODONTOGLOSSUM CRISPUM: SPECIMEN PLANT.

pleased to be able to give its portrait, reproduced from a photograph kindly sent by Mr. Alexander, though exigencies of space have compelled it to be greatly reduced in size. Mr. Alexander states that "it has been grown on from a small imported piece with one lead. Last spring the plant broke double and completed the two bulbs during the summer. It then broke away again in the autumn, with three breaks, making up good bulbs during the winter, from which the six spikes here shown were produced. The

compost in which this result has been obtained consists of two-thirds rough leaves to one-third turfy peat, with the usual covering of sphagnum moss." At page 201 of our last volume we gave a figure of an Odontoglossum crispum from the same collection "to show how Odontoglossums can be grown in leaf-soil," with full particulars of the treatment, and the present example is still more remarkable. There must be something in the compost which these plants like, to induce such vigour, and the general treatment must be good. In any case Mr. Alexander must be congratulated on his success.

CALENDAR OF OPERATIONS FOR JUNE.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

THE welcome change, from dull to brilliant summer weather, has been all that is desired for the welfare of our plants, which are beginning to look very much better, especially those that occupy the warmest divisions. They seem to delight in their natural sun-heat, growing and blooming more vigorously than in our ordinary climate. With the cool-growing species it will be difficult to keep them sufficiently cool, especially when grown in houses exposed all day to the full glare of the sun, and only by ample ventilation, heavy shading, and a plentiful supply of moisture can this be done. A lean-to house facing North, or North-east, is no doubt the best position for these charming species during a hot summer. The grower will find plenty to interest him in looking over his collection, as nearly every day some plant has made a fresh start, either by sending out new roots, young growths, or producing its charming flower spike. A word of caution may not be out of place here, against the practice of allowing the spikes to remain on too long, as is frequently the case, greatly to the detriment of the plants, causing them to shrivel, and weakening them to such an extent that they are scarcely able to form new growth, and often gradually dwindle away. It will greatly conduce to the health of the plant if the flower spikes are cut off after a reasonable time. Small and weakly plants should not be allowed to bloom at all, consequently it is advisable to remove their flower spikes whenever they appear. By giving the plants a fair amount of rest, and afterwards gradually starting them into growth, many valuable plants may be saved and brought round into their normal condition of health.

By this time Cattleya Warscewiczii (gigas), C. Dowiana, and its beautiful variety aurea, are fast making their growth, many showing their sheaths, and when these are apparent water may be applied more freely. The deciduous Calanthes are now becoming strongly rooted, and may likewise be watered

more freely, but still carefully, as the disease which comes in the young foliage in the form of black spot is frequently the result of over-watering before the plant has made roots, though it is not always due to that. Calanthe veratrifolia and others of the evergreen section are handsome and well worth growing, though perhaps not so useful as the deciduous kinds. They delight in the temperature of the Intermediate house, and should be kept moderately moist and shady. A good time for re-potting is as soon as the flowering season is over. They grow best in a compost of good fibrous loam and peat, in equal parts, intermixed with a little good leaf soil and silver sand. When nicely rooted a little weak liquid cow manure may be given occasionally, also to Zygopetalum Mackayi, Sobralia macrantha, **Lycaste Skinneri, and Coelogyne cristata.**

Odontoglossum citrosmum, having passed out of bloom, will now be growing, and where necessary may be re-potted or otherwise renovated. It is a species apt to shrivel a good deal unless exceptional care be taken for a few weeks afterwards. I prefer to grow them in hanging pans, using a compost of equal parts fibrous peat and moss. Bletia hyacinthina when out of flower should be stood outside in the open, but kept well supplied with water. Thunias also, after they have flowered, may about the end of the month be placed in a sunny position outside, to ripen their newly-made bulbs. Those bulbs which have not flowered will, if kept in heat, continue growing almost indefinitely, but by placing them in a well-ventilated house for a time, afterwards placing them outside, they will finish up their growths, and become well matured, and thus be better able to go through the long resting period without rotting off. Water must not be withheld **until the end of the summer.**

Anguloas flower usually about this time, and should, if needed, be re-potted immediately these are removed. Being strong and vigorous-growing subjects, fairly large pots are required for their accommodation. These should be about two-thirds filled with drainage, and the compost used should consist of two parts peat, one part fibrous loam, and the remainder of moss and sand or finely broken crocks. During the growing season the plants should be placed in an intermediate temperature, and afforded a liberal supply of water, always taking care that the compost is becoming dry before giving a fresh application. Along with the above may be grown Lycaste aromatica, cochleata, consobrina, and cruenta, all of which flower at this period. The flower buds appear at the same time as the new growths, but new roots only make their appearance when the latter have made some considerable progress; therefore re-potting or top-dressing should be done immediately the flowers are over. The compost used and the treatment advised for Anguloas will suit them, as well as the following Lycastes:—L. Skinneri, macrophylla, lanipes,

Barringtoniæ, mesochlæna, costata, Cobbiana, etc., which may all now be attended to.

Oncidium tigrinum produces better results when grown in an intermediate temperature than when subjected to cool treatment. It has been resting since maturing its bulbs last season, but is now beginning to grow again. Until the flower spikes appear in the young growths, no large quantities of water should be given. When these are seen, fresh material may be supplied if a shift is not required into a larger pot. Afterwards more water may be given, though those that have been disturbed should have less frequent applications than those only re-surfaced.

As soon as Dendrobium thrysiflorum, densiflorum, Farmeri, clavatum, moschatum, and others of this section, have gone out of bloom, they will soon commence to grow, and when the elongation of the young bulbs has reached the foliage stage, roots will appear at the base, and any re-potting or top-dressing should then be done. The best fibrous peat should be used, with a small proportion of clean living sphagnum. The quantity used to each should only be about two inches in depth, the remainder of the receptacle being filled with clean drainage. Secure the bulbs to a stake or two placed in the middle of the plant to keep it in shape, and water sparingly until the roots have worked their way into the new compost. D. Falconeri should be grown in an airy part of the Cattleya house, either on a block or raft, or in shallow pans or baskets. In either case little material should be used, for although abundance of water is required during the growing season, these plants do not like a soddened base. The small leaves of this lovely species are very subject to the attacks of red spider, and to keep this pest at bay the plants may be sprayed frequently. Re-potting is very seldom necessary, as its mode of growing is more of a branching character than an extension at the base. Fresh material should however be added, where any of the old can be picked away without damaging its very fine roots. D. chrysotoxum and suavissimum flower and proceed to make new growth almost at the same time, but little root action takes place until the flowers are over, when potting or other requirements may be attended to. These enjoy a short quick growing season, and afterwards a long rest.

Sobralias now take a more exalted position among Orchids, since the introduction of so many lovely species and varieties as leucoxantha, Lowii, Lucasiana, xantholeuca, and the white forms of macrantha. They flower at various times of the year, and consequently the bulk cannot be re-potted at the same time, and for this and other reasons each must be studied separately, and operated upon when in a suitable condition, and this is generally a few weeks after the plant has flowered. The majority of these grow well in a warm Intermediate House, or the coolest part of the

Cattleya House. They should have well-drained pots or pans, and over the drainage should be placed a good layer of rough moss, to prevent the fine particles of soil clogging it up. The soil used may consist of two parts lumpy peat, two parts turfy loam, with the addition of a little moss, and sufficient coarse sand or finely broken crocks to render the compost porous. For a few weeks after potting give little water, so as to allow the new roots to enter the fresh soil; afterwards, as growth proceeds, a good supply may be given. Spraying is also very beneficial, and an aid in keeping them free from insect pests.

Stanhopeas are not very popular Orchids, yet where room can be found for them a few members of the genus should be grown, for the sake of their peculiar wax-like flowers. They should be grown in baskets—rather shallow—without any crocks or other hard substances at the bottom, as the flower scapes usually take a downward course, and oftentimes go straight through the basket. A small portion of fibrous peat and moss is all that is needed for them to root into, and excepting when in full growth very little moisture is required other than that obtained from the atmosphere. Those whose baskets have become decayed, or are too small, may be given new ones this month. They do best when suspended from the roof, in a rather shady part of the East Indian House. The above remarks also apply to that curious genus Coryanthes.

Diacrium bicornutum is certainly a very handsome species, though from a cultural point of view it is far from satisfactory. It has cylindrical bulbs, which are hollow, like those of Schomburgkia tibicinis, and on this account will not stand a long period of drought. It has just done flowering, and a short period of inactivity should ensue prior to new growths appearing. This species thrives best in baskets almost filled with crocks and just surfaced with moss. The baskets should be suspended in the warmest and lightest structure at command, and during the growing season given copious supplies of water daily. When the growths are completed the supply should be gradually diminished, though they should not be kept dry for long together, or the bulbs will shrivel beyond recovery.

We can safely assume that fire-heat will no longer be required in the Cool and Intermediate Houses, and given typical summer weather, very little will be needed in the other houses, though the fires should always be kept in, and a gentle circulation of heat maintained in the pipes of the East Indian House. It should also be employed at night in the Cattleya House, to drive away any surplus moisture, and also that more air may be admitted through the bottom ventilators. Plants in bloom should be kept moderately dry, excepting where root action is vigorous, as will probably be the case with such species as Cattleya Warscewiczii, Warneri, Gaskelliana, and Schilleriana.

PHAIUS × HAROLD AND P. × CLIVE.

WITH reference to the figures of Phaius × Harold and P. × Clive, given at pp. 136, 137, of our last issue, together with their parents and grandparents, we have received a very interesting letter from Norman C. Cookson, Esq., also the loan of accurate paintings of single flowers of the two secondary hybrids in question, and of a light form of P. × Norman, to show their respective characters. Mr. Cookson remarks that P. × Harold and P. × Clive were not in bloom at the same time, and consequently it was not possible to compare them as carefully as might be wished, but this is now possible by means of Miss Roberts' very accurate drawings. It will be remembered that at the outset P. Wallichii Sanderianus was crossed with P. simulans, yielding P. × Norman, and this was again intercrossed with both the original parents, yielding P. × Harold and P. × Clive, the former being theoretically three-fourths Wallichii, and the latter three-fourths simulans. In the case of P. × Harold the influence of P. Wallichii is very marked in both the shape and colour of the sepals and petals, but the lip has retained much of the open shape and the markings of a dark form of P. × Norman. P. × Clive shows the increased influence of P. simulans (as compared with its parent P. × Norman) in the shorter and broader sepals and petals, in the decidedly broader and squarer lip, and in having three distinct yellow thickened keels; while some minute white markings on the side lobes are apparently intended to represent a few white hairs. Mr. Cookson states that P. × Clive was again fertilized with P. simulans two months ago, and the pods look promising. It will be interesting to see if this additional cross secures the return of the beautiful white sepals and petals while retaining the vigour of the hybrids.

THE HYBRIDIST.

BRASSOCATLÆLIA × MACKAYI.—This is a very handsome hybrid, derived from Lælio-Cattleya × elegans ♀ and Brassavola Digbyana ♂, of which a flower has been sent from the collection of the Right Hon. J. Chamberlain, M.P., Highbury, Birmingham. The sepals and petals are light blush-pink in colour, the latter measuring two inches broad, and the handsomely fringed lip is of a darker shade of light purple, with the throat bright yellow. Four of the pollen masses are very small. The lip has more colour than most of the Brassavola hybrids. It is a very fine thing, and is dedicated to Mr. Mackay, Mr. Chamberlain's able orchid grower.

BRASSOCATTLEYA × POCAHONTAS.—A very fine Brassocattleya is also sent by Mr. Chamberlain, bearing the above name, and the record of

parentage Cattleya Eldorado ♀ × Brassavola Digbyana ♂. The sepals and petals of a bright rosy lilac, nearly uniform throughout, and the handsomely fringed lip nearly white, with a bright yellow throat, and numerous red purple radiating lines extending from the base to near the middle. It is finer than would have been expected from the record of parentage, the sepals being 2¼ inches broad, and the marked contrast of colour between the tip and the other segments renders it one of the handsomest in the group.

CATTLEYA × CLAUDIAN is another fine hybrid from the same collection, which was purchased some time ago from Messrs. Charlesworth & Co., as a seedling from C. Lueddemanniana ♀ × C. Schilleriana, and flowered for the first time a year ago. The inflorescence now sent bears four flowers, smaller than those of the natural hybrid C. × Whitei, but bearing a general resemblance to it. The sepals and petals are light rosy-purple and the strongly three-lobed lip is dark purple on the front lobe and tips of the side lobes, but paler behind, with a little yellow in the throat.

LÆLIO-CATTLEYA × HILDA.—The intercrossing of Lælia Boothiana and Cattleya Lawrenceana should produce a richly coloured hybrid, bearing a considerable resemblance to both parents in shape. Another fine hybrid from the same collection is believed to have this parentage, though the record obtained with the seedling was "Boothiana × aurea," which, however, was seen to be erroneous, so far as the second parent was concerned, as soon as the flowers expanded. But the seed parent has all the appearance of being correct, and Mr. Mackay remarks that the characters of C. Lawrenceana are strongly in evidence. The flower is bright rose-purple, with the lip of a considerably darker shade, and the shape about intermediate. It flowered for the first time a year ago, and is now a handsome thing.

CATTLEYA × KATHERINÆ.—This is a handsome hybrid raised in the collection of E. V. R. Thayer, Esq., S. Lancaster, Mass., by Mr. Orpet, from C. Warneri ♀ and C. Schrœderæ alba ♂, and flowered in the spring of 1902 from seeds sown in April, 1897. It is described in *American Gardening*, 1903, p. 134. A number of plants are now in flower, and are said not to deviate much from the original, except a little in depth of colour. The plant is said to resemble C. Schrœderæ, except that the bulb is rather more ancipitous, and the leaf broader at the base. The flowers are very fragrant, the sepals and petals of a soft pale lilac colour, and the lip nearly white, but shading into lilac at the margin, with a chrome yellow blotch in the throat, veined with white. It is a very beautiful hybrid.

EPIDENDRUM × BOUNDII.—This is a brilliantly coloured hybrid, raised in the collection of J. Colman, Esq., Gatton Park, Reigate, by Mr. W. P. Bound, from E. radicans ♀ and E. × Burtoni ♂. The seed

was sown in July, 1901, and the growth from which the inflorescence sent was cut is said to have been less than a foot long. The flowers are at present 1¼ inches broad, and the colour is dark orange-scarlet, rather redder than in E. radicans. The lip is very strongly three-lobed, and each lobe is strongly fimbriate, the front lobe being also emarginate, with a shallow keel extending from the crest to near the apex. The column is less curved than in E. radicans. The leaves are oblong, and 2-2½ inches long by ½ by ¾ inches broad. It is a brilliantly flowered hybrid, and when the plant becomes as strong as those of E. × Burtoni, noted at page 134, it will be an extremely handsome thing.

PAPHIOPEDILUM × VIOLETTÆ.—An interesting hybrid, raised in the collection of E. F. Clark, Esq., of Teignmouth, from Paphiopedilum venustum ♀ and P. × Sallieri ♂, and much resembling a large form of P. × Crossianum, though with some traces of its grandparent P. villosum. It is the result of one of Mr. Clark's first experiments in hybridisation, made in January, 1897, of which an interesting account was given at page 163 of our sixth volume. Mr. Clark has about 23 seedlings (this being the first to flower), and one only from the reverse cross. The seed was sown in March, 1898, when the pod ripened, and it is curious to note that the reverse cross, made on the same day, ripened in October, 1897, six months earlier. It will be interesting to see the amount of variation in these seedlings as they reach the flowering stage. The plant is named after Mr. Clark's youngest daughter.

DENDROBIUM SPATHACEUM.

THIS is a curious little white-flowered species which was described by Lindley in 1858 (*Journ. Linn. Soc.* iii., p. 15), from a specimen collected by Dr. J. D. Hooker, on rocks by the Lachen River, Sikkim, at an altitude of 6,000 to 7,000ft., and of which nothing further is known up to the present time. King and Pantling reduce it to D. candidum, Wall., but without having seen it, for they remark: "Judging by the descriptions of D. spathaceum, Lindl., that species must be identical with D. candidum." A plant has now flowered at Kew which has the same very slender pseudobulbs, and the flowers are quite similar in structure. It is one of ten Orchids collected in Sikkim and Khasia by Mrs. Clementina Adie, of Cambridge, and, I believe, represents the missing plant. The flowers are white, with the chin short and obtuse, and the lip three-lobed, with a few greenish hairs on the disc, and the front lobe very narrow. The pseudobulbs are more slender than in D. candidum, and the flowers smaller, but it may be a very slender form of the same species. In any case it is interesting to see the plant again.

R. A. ROLFE.

CATTLEYA SCHRŒDERÆ.

WE have much pleasure in reproducing a photograph of a fine example of Cattleya Schrœderæ, grown and photographed by Mr. A. Herrington, Madison, New Jersey, U.S.A., showing the unusual number of seven flowers on a spike. The photograph was sent by Mr. A. Dimmock, of New York, the American representative of Messrs. Sander & Sons. Mr.

FIG. 36. CATTLEYA SCHRŒDERÆ.

Dimmock writes:—"I have sent you a photograph of a specimen of Cattleya Schrœderæ, also one of an individual spike of seven flowers. The plant recently had three spikes, of seven, six, and five flowers. Not having seen seven flowers on a spike before, and only one other with six, I have forwarded you the photograph, which I hope you will reproduce in your pages. Such an example of successful cultivation is worthy of record. Every blossom was perfect, and the plant occupies a six inch basket."

We have selected the entire plant for reproduction, as it forms a charming little picture, besides showing the habit. The seven-flowered inflorescence is the upper right hand one, and the single photograph only shows the flowers of larger size. It is certainly an example of excellent culture, and we should be glad to know whether any special treatment was given beyond that usually adopted in America.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of the above Society was held at the Drill Hall, Buckingham Gate, Westminster, on May 5th, when a very fine display of Orchids was seen.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), gained a Silver Flora Medal for a fine group, containing Cypripedium bellatulum, C. Lawrenceanum Hyeanum, C. Mastersianum, Oncidium Kramerianum, O. phymatochilum, O. macranthum, Cymbidium × eburneo-Lowianum, Lælia × Latona, L. purpurata, Cattleya Mendelii, C. Schrœderæ, C. Schilleriana Pitts' var., C. Lawrenceana, and some good Odontoglossums, the fine O. cirrhosum Pitt's variety obtaining an Award of Merit. A Botanical Certificate was given to Megaclinium Imschootianum, a curious species, having triangular pseudobulbs, and yellowish flowers, whose petals are tipped with purple.

Capt. Holford, Westonbirt, Tetbury (gr. Mr. Alexander), secured a Silver Flora Medal for a splendid group, including many fine varieties of O. crispum and other Odontoglossums, Zygopetalum × Perrenoudi, Cattleya Mendelii Duchess of York, Lælia × Latona, L. cinnabarina, Lælio-cattleya × G. S. Ball, L.-c. × Hyeana splendens, Cypripedium × Chapmanii magnificum, Masdevallia Veitchiana grandiflora, and others. A Cultural Commendation was given to a superb example of Odontoglossum crispum with six spikes, bearing in all 129 flowers. A figure appears on page 169.

Sir F. Wigan, Bart., Clare Lawn, East Sheen (gr. Mr. Young), was awarded a Silver Flora Medal for a fine group, containing many Cypripediums, such as C. bellatulum, C. b. album, C. Godefroyæ, C. G. leucochilum, C. niveum, and C. concolor, together with Trichopilia suavis, Dendrobium infundibulum, Miltonia × Bleuana, M. vexillaria chelseensis, Cymbidium tigrinum, Odontoglossum tripudians, Lælia purpurata, and a fine plant of Lælio-cattleya × highburyensis, having two spikes with seventeen flowers.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed a finely-grown example of Odontoglossum triumphans Lionel Crawshay, which gained a Silver-gilt Flora Medal.

J. Rutherford, Esq., M.P., Beardwood, Blackburn (gr. Mr. Lupton), showed a good Odontoglossum × Adrianæ and O. × Queen Alexandra Rutherford's variety (Harryanum × excellens), the latter gaining an Award of Merit. It has yellow sepals and petals, heavily marked with red-brown, and a white lip bearing a dark red-purple blotch and numerous smaller markings.

R. K. Cross, Esq., Slinfold, Sussex, sent Cypripedium Godefroyæ leucochilum.

Capt. J. C. Stringer, Park Hill, Kenilworth (gr. Mr. Holland), showed an exceptionally large dark rose form of Miltonia vexillaria.

Messrs. J. Veitch & Sons, Chelsea, gained a Silver Flora Medal for a fine group, containing Cattleya Schrœderæ and other Cattleyas, Epicattleya × radiato-Bowringiana, varieties of Epidendrum × O'Brienianum, Oncidium Marshallianum, some good Lælia × Latona, Masdevallia Veitchiana, and other good things.

Messrs. Charlesworth & Co., Heaton, Bradford, showed an excellent group, for which a Silver Banksian Medal was awarded. It contained many fine Odontoglossum crispum and O. × Adrianæ, Cypripedium × Violetta (Chamberlainianum × nitens), Epilælia × Aspasia (L. cinnabarina × C. Cooperianum), Lælio-cattleya × G. S. Ball, L.-c. × Adolphus, and L.-c. Dora, the three latter being rich orange-coloured forms.

Messrs. Sander & Sons, St. Albans, showed Spathoglottis × aureo-Veillardii, Sobralia × mirabilis (Veitchii × macrantha alba), S. × luminosa (Holfordi × Wilsoni), Cypripedium Lawrenceanum excelsior, Phaius × Marthæ, Lælia × purpurato-grandis, and others.

Messrs. Hugh Low & Co., Bush Hill Park, showed Odontoglossum × Ruckerianum and O. × Wendlandianum.

Messrs. B. S. Williams & Son, Holloway, showed the fine Cypripedium × polito-Sallieri, yellow, heavily marked with chocolate-brown.

Messrs. L. Linden & Co., Moortebeek, Brussels, showed Cypripedium × Gordoni (Chamberlainianum × œnanthum), C. × G. inversum, Odontoglossum sceptrum, and a very large form of Dendrobium nobile.

At the meeting on May 19th there was again a good show of Orchids.

H. T. Pitt, Esq., was awarded a Silver-gilt Flora Medal for a splendid group, containing many very fine varieties of Odontoglossum crispum, O. citrosmum album, O. Pescatorei, O. Uroskinneri, O. × Adrianæ, Miltonia Roezlii, M. vexillaria gigantea, Cypripedium × Euryalus, C. Mastersianum, C. Lawrenceanum hackbridgense, Cattleya × Lawre-Mossiæ, C. Schrœderæ heatonensis, C. × Wm. Murray, Dendrobium × rhodopterygium, Trichopilia marginata, Brassia Wrayæ, and some good Oncidiums. A Botanical Certificate was given to Trigonidium spathulatum.

N. C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), was awarded a Silver Flora Medal for a fine group, chiefly of Phaius and Odontoglossums, including P. × Phœbe aureus, P. × P. superbus, P. × Ruby, P. × oakwoodiensis, O. crispum Massangeanum, O. c. Lehmanni, O. × excellens Princess Christian, Cypripedium callosum Sanderæ, C. bellatulum, Dendrobium × Venus Cookson's variety, and others. An Award of Merit was given to O. c. Harold, a fine white form, blotched with red-brown on the lip and sepals, the lateral pair also having some yellow brown crest-like markings at the base.

The Hon. W. Rothschild, M.P., Tring Park (gr. Mr. Hill), gained a Silver Flora Medal for a very fine group of hybrid Masdevallias, including M. × Mundyana, M. × Fraseri, M. × Gairiana, the bright scarlet M. × Rushtoni, M. × Hebe (coriacea × Veitchiana), the orange M. × Veitchiano-Estradæ, M. × caudato-Estradæ, M. × Henrietta, M. × Leda, and the bright purple M. × glaphyrantha. Xylobium squalens was also included.

W. C. Walker, Esq., Winchmore Hill (gr. Mr. Cragg), gained a Silver Flora Medal for a group of finely grown Odontoglossum crispum.

De B. Crawshay, Esq., showed Odontoglossum × Hallio-crispum and O. × Wattianum Crawshayanum, an Award of Merit being given to the latter.

Sir R. D. Moncreiffe, Bart., Moncreiffe House, Bridge of Earn, N.B. (gr. Mr. Common), showed some fine cut spikes of Odontoglossum crispum and O. × Andersonianum. An Award of Merit was given to O. crispum Lady Moncreiffe, a handsome form tinged with rose and blotched with purple.

Col. Brymer, M.P., Dorchester (gr. Mr. Powell), showed cut spikes of four varieties of Thunias.

H. J. Elwes, Esq., Colesborne, Andoversford, showed Thunia Bensonæ, T. Marshalliana, and T. M. aurantiaca.

L. de Rothschild, Esq., Gunnersbury House, Acton (gr. Mr. Hudson), showed a fine plant of Lælio-cattleya × Phœbe with two flower spikes.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Gilbert), showed Lælio-cattleya × Zephyra alba, C. Skinneri alba, and the handsome C. Mossiæ Arnoldiana Westfield variety.

F. W. Moore, Esq., Royal Botanic Gardens, Glasnevin, sent a cut spike of Eria Kingii.

Messrs. H. Low & Co. received a Silver Flora Medal for a good group, containing a fine example of Dendrobium Bensonæ, Vanda lamellata, Cattleya intermedia alba, and two splendid plants of Cattleya Skinneri, one bearing no fewer than seventeen spikes. An Award of Merit was given to the bright rose-purple Dendrobium glomeratum.

THE TEMPLE SHOW.

THE sixteenth Great Annual Temple Show was held (by kind permission of the Treasurer and Benchers) in the Inner Temple Gardens, on Tuesday, Wednesday, and Thursday, May 26th, 27th, and 28th, in glorious weather, and floriculturally was a great success, for the exhibits were excellent in every department, and the Orchids have probably never been equalled at the Temple. The quality was excellent, and there was a fair sprinkling of novelties, mostly among the hybrids. The judges for Orchids were Messrs. H. J. Chapman, James Douglas, J. Gurney Fowler, and H. Little; and Mr. R. A. Rolfe was invited to assist the Orchid Committee in adjudicating on the plants submitted for Certificates, which were 90 in number. The awards included six First-class Certificates, thirteen Awards of Merit, one Cultural Commendation, and one Botanical Certificate, but several Odontoglossums were disqualified for disbudding.

Sir Frederick Wigan, Bart. (gr. Mr. Young), staged a superb group, rich and varied in composition, which gained the award of a Gold Medal. It contained a fine series of Odontoglossums, conspicuous among them being O. citrosmum album, good forms of O. crispum, O. × Andersonianum, O. Hallii, O. gloriosum, O. × loochristiense, O. cordatum, O. hastilabium, O. × ardentissimum Wigan's variety, O. tripudians, O. × Wilckeanum. There were also fine examples of Miltonia vexillaria and M. × Bleuana, a noble specimen of Cymbidium Lowianum with eleven spikes (Cultural Commendation), C. tigrinum, a fine pan of Dendrobium Bensonæ, D. infundibulum, D. Parishii, Oncidiums phymatochilum and Gardneri, a fine example of Zygonisia × Rolfeana, Masdevallia Carderi, M. × Pourbaixii, and various brilliant flowered forms, Saccolabium curvifolium, Aërides Fieldingii, Maxillaria Sanderiana, Phalænopsis Lueddemanniana, Leptotes bicolor, a fine pan of the rare Cœlogyne Schilleriana, Trichopilia tortilis, the rich purple Phaius × Wiganianus (Owenianus × Humblotii), Nanodes Medusæ, Sobralia macrantha alba, Cattleya Forbesii, C. Skinneri, and various showy Cattleyas, Brassavola Digbyana, Lælia purpurata, Cypripedium bellatulum and its variety album, C. Druryi, with various other showy things. A First-class Certificate was given to Cattleya × Whitei magnifica, and an Award of Merit to Lælio-cattleya × Canhamiana Rex.

Leopold de Rothschild, Esq. (gr. Mr. Reynolds), received a Silver-gilt Lindley Medal for a very fine group of Vanda teres, arranged in the form of a bower, backed with palms and bamboos, and carpeted with maiden-hair ferns; a most effective exhibit.

J. Coleman, Esq., Gatton Park, Reigate (gr. Mr. Bound), also received a Silver-gilt Lindley Medal for a very beautiful group, in which Miltonia vexillaria and brilliant flowered Masdevallias were very effective. It also

included some good Odontoglossums, Cochlioda Nœtzliana, Ada aurantiaca, Dendrobium atroviolaceum, Lycaste cruenta, Epidendrum ciliare, Vanda tricolor, Phalænopsis amabilis, Oncidium monachicum, a brilliant example of Sophronitis grandiflora, Thunia Marshalliana, Cypripediums, some showy Cattleyas and Lælio-cattleyas, with C. Skinneri alba, C. Mossiæ Reineckeana, C. intermedia Parthenia, and C. i. cœrulea, the latter receiving an Award of Merit.

R. Ashworth, Esq., Newchurch, Manchester (gr. Mr. Pidsley), received a Silver Lindley Medal for a small group, containing two Cypripedium callosum Sanderæ, Cattleya Skinneri delicata, C. Schrœderæ alba, the brilliant Masdevallia coccinea and Veitchiana, and about a dozen good blotched forms of Odontoglossum crispum. An Award of Merit was given to O. c. Grand Duchess, a fine heavily blotched form.

J. Rutherford, Esq. (gr. Mr. Lupton), received a Silver-gilt Banksian Medal for a showy group, in which forms of Cattleya Mossiæ were conspicuous, together with Cochlioda Nœtzliana, Cypripedium × Annie Measures, a good C. hirsutissimum, C. insigne, Odontoglossum triumphans, and O. × Queen Alexandra Luptoni, much more yellow and less spotted than the type.

N. C. Cookson, Esq. (gr. Mr. Chapman), sent good forms of Phaius × Phœbe, P. × Chapmanii (× Phœbe × Humbloti), a very fine rosy form with darker lip (Award of Merit), and Odontoglossum crispum Grairianum, a very handsome variety, having the sepals and petals almost entirely rosy brown, with the exception of a broad white margin all round (First-class Certificate).

The Hon. Walter Rothschild, M.P. (gr. Mr. Hill), sent the rare and curious Aëranthes dentiens (Rchb. f.), Lælio-cattleya × Lucia, and Schomburgkia Galeottiana, the latter receiving an Award of Merit.

Miss Edith Cole, West Woodhay House, Newbury, sent Eulophia Phillipsiæ and E. Coleæ, two curious Somali-land species, the latter receiving a Botanical Certificate.

H. Little, Esq.. Twickenham (gr. Mr. Howard), sent Lælia × Minerva (× Latona × tenebrosa), a pretty buff form.

G. J. Lucas, Esq., Horsham (gr. Mr. Duncan), sent Odontoglossum × Andersonianum, and two forms of O. crispum.

H. Shaw, Esq. Stockport (gr. Mr. Cliffe) sent a good Lælia × cinnabrosa.

M. Ch. Vuylsteke, Loochristy, Ghent, sent a series of seven very beautiful hybrids of artificial origin, two of which gained First-class Certificates, and two Awards of Merit. They were O. × Wilckeanum venerandum (F.C.), a large yellowish white variety, heavily blotched with red-brown : O. × ardentissimum exquisitum (F.C.), a most beautiful form,

having the greater part of each segment bright mauve-purple, and the margins white, and prettily toothed; O. × a. concinnum (A.M.), a fine white heavily blotched with mauve-purple; O. × Vuylstekei exquisitum (A.M.), having the flowers mostly red-purple with a white margin, O. × bellatulum (from crispum and tripudians); O. × merificum (from crispum and sceptrum), and another hybrid of doubtful parentage.

M. Jules Hye de Crom, Ghent, sent Odontoglossum × amœnum (Pescatorei × sceptrum), a very pretty novelty, and O. × ardentissimum numosum, a fine white form handsomely marked with mauve purple (Award of Merit).

M. Draps-Dom, Laeken, Brussels, received a First-class Certificate for Vanda tricolor tenebrosa, a very richly-coloured form.

M. Ch. Maron, Brunoy, France, received an Award of Merit for Vanda × Marguerite Maron (teres × suavis), a distinct and handsome hybrid, having erect fleshy leaves, larger than those of V. teres, and laterally compressed, and rosy unspotted sepals and petals, approaching those of V. teres, but the lip more like the other parent in shape and colour.

M. Florent Claes, Etterbeek, Brussels, sent three pretty forms of Odontoglossum × Adrianæ, and some spotted and other forms of O. crispum.

The trade exhibits were very fine, no less than nine Medals of different kinds being awarded, and we regret that considerations of space compel us to give a very brief report.

The group staged by Messrs. Sander & Sons was magnificent in every respect, and gained a Gold Medal. Miltonia vexillaria, M. × Bleuana, and the Odontoglossums were extremely fine, a spike of O. × Wilckeanum having 23 flowers, and a fine O. × Rolfeæ fourteen. O. crispum F. K. Sander was a very fine form, heavily blotched with crimson-purple on the broad segments. Several forms of Lælio-cattleya × Canhamiana were extremely good, also L.-c. × Digbyano-Mossiæ, a warm soft rose flower of great size with a light yellow throat. We also noted L.-c. × Herode, many fine Cattleyas, Lælia grandis, L. tenebrosa, Epidendrum Frederici-Gulielmi, Leptotes bicolor, Cypripedium callosum Sanderæ, C. philippinense, Phalænopsis amabilis, Renanthera Imschootiana, Aërides Lobbii, Angræcum pertusum, Trichopilia tortilis, Warscewiczella discolor, Chondrorhyncha Chestertoni, Saccolabium ampullaceum, Maxillaria Sanderiana, Dendrobium secundum, Oncidiums, &c., &c.

Messrs. Charlesworth & Co. also staged an extremely rich and varied group, which gained a Silver-gilt Lindley Medal. The hybrids were fine and very numerous, two little groups of Phaius × Norman and Lælio-cattleya × G. S. Ball being particularly effective. Other fine things were L.-c. × albanensis inversa, × Dora, × Phœbe, × highburiensis, Brasso-

cattleya × nivalis, and others, Brassolælia × Helen and Gratrixiæ, Vanda teres, Angræcum Sanderianum, Stanhopea Amesiana, Ornithocephalus grandiflorus, Miltonia flavescens, Masdevallia calura, coccinea, and Veitchiana, Oncidium Marshallianum, macranthum, superbiens, and concolor, Odontoglossum × Harryano-triumphans, polyxanthum, × Adrianæ, crispum, triumphans, &c., Cypripediums, and some brilliant Cattleyas, including a specimen plant of C. Skinneri. A First-class Certificate was given to L.-c. × Fascinator splendens (Schrœderæ × purpurata), and Awards of Merit to L.-c. × F. nobilior, Odontoglossum crispum The Kaiser, a fine form heavily blotched with dark purple, and Brasso-cattleya × striata (C. Mossiæ × B. fragrans).

Messrs. Hugh Low & Co. gained a Silver-gilt Flora Medal for a brilliant group, in which the showy species of the season were well represented, two fine specimens of Cattleya Skinneri, about 2½ feet across, being very effective, also C. Mossiæ Wageneriana, C. M. Reineckeana, and others. We noted also Epidendrum Frederici-Gulielmi, Brassia verrucosa, Vanda teres, Masdevallia Wageneriana, Dendrobium Lowii, a fine clump of D. Bensonæ, D. Dearei, Chysis bractescens, Odontoglossum × excellens, × Harryano-crispum, &c., &c.

Messrs. J. Cypher & Sons gained a Silver Medal for a very beautiful group, containing many fine Odontoglossums and brilliant Masdevallias, good Dendrobium Bensonæ and nobile, Lælia purpurata, Miltonia Roezlii, Sophronitis grandiflora, Calanthe × Dominii and veratrifolia, Epiphronitis × Veitchiana, Epidendrums, Oncidium concolor, the rare Odontoglossum nævium, Cypripediums, Cattleya citrina, and various other showy species.

Messrs. William Bull & Sons staged a very fine group, containing some fine forms of Cattleya Mossiæ and Mendelii, Lælia purpurata and tenebrosa, Oncidium Kramerianum, concolor, and varicosum Rogersii, Masdevallia Reichenbachiana and Veitchiana, Lælio-cattleya × Canhamiana, Mesospinidium vulcanicum, good Odontoglossums, &c. A Silver-gilt Flora Medal was awarded for Orchids and Foliage Plants.

Messrs. B. S. Williams & Son received a Silver Flora Medal for a fine group, containing, besides the usual showy species, a noble specimen of Cymbidium Lowianum, Anguloa Clowesii, Vanda tricolor and suavis, Thunia Marshalliana, Platyclinis latifolia, &c.

Mr. John Robson, Altrincham, received a Silver Flora Medal for a good group of the usual showy species, in which two good Cypripedium callosum Sanderæ were conspicuous.

Messrs. John Cowan & Co. received a Silver Banksian Medal for a good group of showy Orchids, including also two good Dendrobium atroviolaceum, Masdevallia × Rushtoni and × Acis, Odontoglossum × Coradinei, Cypripedium callosum Sanderæ, and a remarkable Lælia

purpurata with one normal flower, but the other on the same inflorescence having lost all the dark purple from the lip, giving a curious harlequin-like appearance.

Messrs. J. & A. McBean received a Silver Banksian Medal for a good group of Odontoglossums, both white and spotted, with good examples of most of the other showy species, and a few hybrids. O. c. Diana, a fine white, with a tinge of purple on the sepals, received an Award of Merit.

Messrs. Stanley Ashton & Co. exhibited a good Cattleya Mossiæ Wageneri.

Mr. H. Becker, Jersey, showed three good forms of Lælia purpurata.

Messrs. A. J. Keeling & Sons sent a good form of Odontoglossum crispum, a light Lælia × nigrescens, and Lælio-cattleya × Wiganiæ.

Lastly may be mentioned a few species of Orchis, and several species of Cypripediums, in the groups of hardy plants.

ORCHIDS IN SEASON.

FLOWERS of the beautiful hybrids Brassolælia × Veitchii and B.-l. × Helen are sent from the collection of the Right Hon. J. Chamberlain, M.P., Highbury, Birmingham, by Mr. Mackay, and it is very interesting to see the markedly different effect of crossing Lælia purpurata and L. tenebrosa with Brassavola Digbyana. There is a general resemblance in shape between the two hybrids, but in B.-l. × Veitchii the sepals and petals are nearly white, and the limb of the lip suffused and veined with light purple, while in B.-l. × Helen the sepals and petals are tawny brown and the limb of the lip light purple with darker veins. In both cases the throat is yellowish white, but in the latter there are several radiating purple lines on the lower fourth of the tube. The form of B.-l. × Veitchii is rather lighter than usual, and it is said to have been obtained from Brassavola Digbyana crossed with Lælia purpurata Russelliana.

A fine form of Lælia purpurata is sent from the collection of Mrs. Grogan, Slaney Park, Baltinglass, Co. Wicklow. The sepals and petals are pure white, the lip very dark purple, and the throat lined throughout with the same colour. The plant is flowering for the first time, bearing three racemes, the best of which has five flowers. There was only a single lead last year, but this year it made three, each producing a spike.

A good flower of Odontoglossum Rossii majus is sent from the collection of R. W. Rickards, Esq., The Priory, Usk. It has flowered regularly in the collection for the last ten years, but Mr. Rickards thinks he has not noticed it quite so fine before.

A spike of the handsome Paphiopedilum × callo-Rothschildianum is sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr.

Rogers) ; also two forms of P. virens, the latter being accompanied by photographs, one plant bearing four flowers, the other only two. The two forms differ slightly in the shape and colour of the flower. They were imported as one mass several years ago among plants of P. Dayanum, and were obtained from Messrs. Hugh Low & Co.

Several very beautiful Odontoglossums are sent from the collection of W. Thompson, Esq., Walton Grange, Stone, by Mr. Stevens, including M. Vuylsteke's charming hybrids O. × Vuylstekei and O. × bellatulum, which were described at page 99 of our last volume. There are three very distinct and pretty forms of O. × Adrianæ, one having pretty light yellow flowers, exactly typical in shape, but with a tendency to having the few spots aggregated in the lip and lateral sepals. Out of three flowers sent two dorsal sepals and four petals are absolutely unspotted, and the remainder only bear a single spot each. The spots in the lateral sepals range from one to eight, and in the lip about the latter number occur. A second form is white, very regularly spotted with cinnamon brown, while the third has the usual dark chocolate spots, which are larger and somewhat confluent in the sepals. The others are, a fine form of O. × Andersonianum, two forms of O. Denisonæ (Wilckeanum), a fine heavily blotched form of O. × Rolfeæ, a good white O. crispum, and a large O. Pescatorei, the whole forming a very interesting group.

Two handsome forms of Odontoglossum crispum, each of which received a First-class Certificate from the Manchester Orchid Society on May 7th, are sent from the collection of John Leemann, Esq., Heaton Mersey, by Mr. Edge. O. c. Leemanni has the sepals and petals heavily blotched with red-purple, the markings taking the form of two very large irregular blotches on the sepals and one similar blotch on the petals. O. c. Sadie Bell has the markings of the petals broken up into about six or eight rounded spots, and the blotches on the sepals rather smaller than in the preceding.

A twin-flowered inflorescence of the handsome Paphiopedilum × Chapmanii magnificum (Curtisii × bellatulum) is sent from the collection of Captain Holford, Westonbirt, Tetbury, by Mr. Alexander. The expanded flower is splendidly developed and of the richest colour, the second being still in the bud state.

Three fine forms of Cattleya Mossiæ are sent from the collection of Darcy E. Taylor, Esq., The Rocks, Marshfield, Chippenham. They are fairly typical as regards colour, but are very finely grown, the petals in one case being over 2¾ inches broad. A deep rose form of Miltonia vexillaria and another with white lip are also sent.

Several interesting flowers are sent from the collection of J. J. Neale, Esq., of Penarth, by Mr. Davy. Oncidium Limminghei is a rare and pretty species, which is said to succeed well on a block in a shady part of

the hottest house, each spike producing four or five flowers in succession, after the fashion of O. Papilio—to which indeed it is allied, though so different in general appearance. Leptotes bicolor is another pretty little plant, and it is interesting to record that a capsule has just ripened which was obtained by fertilising with the pollen of Cattleya Mossiæ about a year ago. The others are, two forms of Lycaste Deppei, the brilliant Masdevallia coccinea conchifera, Dendrobium Bensonæ, a brightly coloured form of Odontoglossum maculatum, O. luteopurpureum and its pale lipped variety hystrix, O. Hallii, and the pretty little O. facetum, whose origin is still a matter of some uncertainty. It would be interesting to know more about its habitat.

DIACRIUM INDIVISUM.

THIS curious plant is again flowering at Kew, and closely resembles the well-known D. bicornutum, except that the flowers are only half as large. It is a native of Trinidad and is the Epidendrum indivisum, of Bradford, which was described in 1864 (*Griseb. Fl. Brit. W. Ind.*, p. 614). Dr. Bradford described it as differing from D. bicornutum in having an undivided lip, but this seems to have been partly due to the flowers being cleistogamous. A specimen which flowered at Kew in May, 1889, was in the same condition—in fact it came with the name "Epidendrum bicornutum var. with cleistogamous flowers," and I immediately recognized it as being identical with Dr. Bradford's plant, though I was at first doubtful of its distinctness from D. bicornutum. Perfect flowers afterwards appeared, and these had small rounded side lobes to the lip, scarcely half as large as those of D. bicornutum, as is the case with those now flowering at Kew. It is clearly a distinct species. A photograph showing a large clump bearing numerous racemes of perfect flowers was sent by J. H. Hart, Esq., F.L.S., from the Royal Botanic Garden, Trinidad, in 1885, and dried specimens in the following year, these being localized as "Inland Woods, Trinidad." It is not nearly as showy as D. bicornutum, about which Mr. W. E. Bradway gave an interesting note in 1896 (*Gard. Chron.*, 1896, i, p. 548), when he remarked:—"D. indivisum, growing beside its ally, presents a miserable comparison; its puny white flowers are quickly followed by seed pods." D. bicornutum was then described as a feature of the Government House Grounds during the early months of the year, when its flowers expand in large numbers, filling the air with a delightful aroma, and glistening in the sun as though covered with frost. It was called the "Virgin Mary Orchid." Both species require to be grown in the warmest house.

R. A. R.

ORCHIDS AT GHENT.

A VISIT to Ghent would be incomplete which took no account of the various Nurseries there in which Orchids are grown, and we took the opportunity of seeing several of them, and, although many of the best plants were absent at the great Show, we found much to interest us. A search for novelty at this time of course pointed in the direction of seedling Odontoglossums, and the road to Loochristy, where the establishment of M. Ch. Vuylsteke is situated, and there we first directed our steps. We had previously seen several beautiful spikes, which were exhibited at the Raout of the Chambre Syndicale des Horticulture Belges, on April 19th, including two of the fine O. × armainvillierense, heavily spotted with violet purple, and closely resembling the variety ardentissimum.

M. CH. VUYLSTEKE'S ESTABLISHMENT.

On arriving here we found a number of compact and well-built houses devoted to Orchids, these being span-roofed, and protected by roller blinds. The first house entered was chiefly devoted to Odontoglossums, those in flower including good examples of O. Edwardi, Pescatorei, sceptrum, triumphans, mirandum, and × Adrianæ, one of the latter being a charming light variety. Here were also good batches of Miltonia vexillaria and Cymbidium Lowianum.

The next house was largely devoted to Cypripedes, and we noted some good examples of hirsutissimum in flower, also × Sedeni, × Schroederæ and × grande, in fine condition, with Chysis bractescens, and some more Miltonia vexillaria, in splendid health. A capsule of M. v. Leopoldi × Bleuana was interesting, and may be heard of again. A case of seedling Cattleyas and Lælias was also interesting, together with quantities of larger plants.

A third house contained chiefly Odontoglossums, finely grown and pushing up a forest of spikes, but very little yet actually in flower: after which we come to a fine house of seedlings, computed to contain about a thousand plants, mostly of flowering size, and about 150 either in flower or bud. Those expanded included several fine forms of O. × Denisonæ (Wilckeanum), one of them being of enormous size, and the petals deeply toothed, some good forms of O. × Vuylstekei and × bellatulum, both of which were described at page 99 of our last volume, O. × Harryano-crispum, and several examples of O. × armainvillierense (Pescatorei × crispum Franz Masereel). It was curious to see that some of these latter were absolutely unspotted, being white tinged with purple, but retaining the intermediate shape, and it may be added that the other hybrids named also showed a considerable amount of variation.

Another house of Odontoglossums contained numerous flowering

examples of O. crispum, Pescatorei, and triumphans, a good O. × excellens, O. × stauroides, and a fine O. × Andersonianum, bearing four side branches and an aggregate of forty flowers. A good form of O. crispum also carried a spike of fourteen flowers. It is hardly necessary to state that the plants are very well grown, but some of the plants of O. crispum have been here from fifteen to twenty years, which shows how well their requirements are understood.

We had not yet seen the young seedlings, and being anxious to do so we asked M. Vuylsteke for the privilege, but for some occult reason it was not granted. It can hardly be that the method of raising them is any longer considered a secret, for a photograph of Mr. Thompson's seedlings, accompanied by full details of the method of treatment, were given at pp. 41-43 of the present volume. In any case the circumstance was a little disappointing, and we were the more pleased when on the following day M. Peeters showed us his seedlings, at Brussels, and made no secret of his method of procedure, as described at page 131, last month. Apart from this circumstance we were very pleased with our visit, and the sight of a thousand seedling Odontoglossums in or near the flowering stage was a sight to be remembered.

(To be continued.)

DENDROBIUM CREPIDATUM ALBUM.

An albino of the pretty Dendrobium crepidatum has appeared in the collection of Darcy E. Taylor, Esq., The Rocks, Marshfield, Chippenham, It is a small imported plant, and a flower has been sent to us, together with one of the typical form. It is one of the peculiarities of this species that the pedicels of the flowers are rose-coloured, much darker than the sepals and petals, but the albinism in the present case is so complete that the pedicels are pure white, like the sepals and petals, also the apex and margin of the lip. The disc of the lip is of the usual orange-yellow colour. It is a charming little plant, and should be taken care of, for we do not find a previous record of the appearance of an albino of the species. There is a curious partially cleistogamous form of the species, in which the flowers either do not open properly or close again very quickly, owing to their being self-fertile. This seems to be the case with the Sikkim form, which Mr. Pantling remarks is usually, if not invariably, self-fertile, and hence is unattractive in appearance, and represents a stage in the transition to cleistogamy. It occasionally appears in cultivation, but is not taken care of, as it lacks the beauty of the Assam and Burmese plant.

R. A. R.

BULBOPHYLLUM CLAVATUM AND ITS ALLIES.

SEVERAL Bulbophyllums of the clavatum group are now in cultivation, and are characterised by having the rachis of the raceme much swollen, in some cases the flowers being partially sunk in a cavity. The original B. clavatum (Thouars) is a native of the Mascarene Islands, and has recently been introduced to gardens. B. cæspitosum (Thouars), from the same country, has also recently appeared among Madagascar importations. B. bracteolatum (Lindl.) was introduced from Demerara by Messrs. Loddiges, and flowered with them in July, 1837, when it was figured by Lindley, who described it as a singular instance of the existence in America of a genus hitherto found only in the Old World (*Bot. Reg.*, 1838, t. 57). It has since been found in Jamaica, Cuba, and Trinidad, and has received the later name of B. pachyrrhachis (Griseb.). B. saurocephalum (Rchb. f.) is a Philippine species, which appeared in 1886, and is precisely similar in the character of the inflorescence. In all the foregoing the flowers are more or less irregularly scattered, but in B. quadrifarium (Rolfe) they are arranged in four parallel rows, partly sunk in the rachis and hidden behind shortish triangular-oblong bracts. It was introduced from Madagascar by M. A. A. Peeters, and flowered at the Royal Botanic Gardens, Glasnevin. The lip is strongly fringed at the margin. A few other species are not yet known in cultivation.

R. A. R.

CYMBIDIUM ATROPURPUREUM.

THE Cymbidiums of the pendulum group have been very unfortunate as regards their nomenclature, some of the species being almost inextricably confused in books. In 1857 a handsome plant was described by Lindley as Cymbidium pendulum var. atropurpureum (*Gard. Chron.*, 1857, p. 287), as follows:—"A Bornean plant in the possession of John Knowles, Esq., of Manchester, which has lately produced its flowers, proves to be a narrow-leaved variety of this species, with deep purple sepals and petals, and yellow ribs to the lip. It is far handsomer than the old varieties. The same form is before us, collected by Cuming in the Philippines. The species seems to be a native of all the insular parts of Asia within the tropics." In 1868 it was figured in the *Botanical Magazine* (t. 5710), when Dr. Hooker remarked:—"There can, I think, be little doubt that this fine plant is a form of C. pendulum, Swartz, a native of Singapore, Java, and the Philippine Islands, as well as of many parts of India proper, as the Himalaya and Khasia mountains, and those of the Western Peninsula. It flowered with Messrs. Rollisson, of Tooting, in March of the present year, and was imported rom the East Indian islands, probably Java, but this is, I understand,

doubtful. The leaves were three feet in length, and spikes of two feet and a half, presenting a truly noble appearance, far surpassing any of the other varieties of the same species hitherto discovered." In 1893 I pointed out that the plant usually called C. pendulum in gardens was not Swartz's plant of that name, but C. Findlaysonianum, Lindl. (see *Veitch Man. Orch.* ix, p. 21), and as a result of this Messrs. Veitch transferred the present plant to C. Findlaysonianum, as var. atropurpureum (*Veitch Man. Orch.* ix. p. 16); but this does not end the matter, for the plant represents quite a distinct species. It is remarkable how rare the plant is in gardens, the only one we know of at the present time being in Baron Sir H. Schröder's fine collection at The Dell, Egham, whence a fine spike was exhibited at the R. H. S. meeting on May 7th, 1901 (*O. R.*, ix. p. 183). The remarks quoted about the wide distribution of C. pendulum arose from a confusion in nomenclature, for the name C. pendulum alone belongs to the North Indian plant, the Epidendrum pendulum of Roxburgh, while both the South Indian and Malayan species are distinct, as well as the present one, which we believe is a native of Java. It may be readily distinguished by the colour of the sepals and petals, and the shape and details of the lip.—R. A. ROLFE.

NOTES.

THE next meeting of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, on June 9th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

Orchids will also be included in the Great Summer Show to be held at Holland House, Kensington, on June 25th and 26th. The Orchid Committee will meet at 11 a.m. on June 25th, and entries of plants for Certificate may be made up to 10.30 on the morning of the Show, but entries for groups must be sent to the Secretary of the R.H.S. not later than June 18th.

Some good prices were obtained at the sale of the Monkholme Collection of Orchids, formed by the late Mr. R. Tunstill, Brierfield, near Burnley, numerous choice varieties realising from thirty to fifty guineas each. Among special subjects may be mentioned the following:—Cypripedium × Priam, with seven growths, old and new, sold for 200 guineas; C. × aureum Surprise, with one old and two new growths, 85 guineas; C. × Maudiæ magnificum, with two old and two new growths; 70 guineas; and Cattleya Percivaliana alba, with six bulbs, 55 guineas.

The May number of the *Revue de L'Horticulture Belge et Etrangère*, contains a very complete account of the recent Ghent Show, with numerous illustrations, among which we notice one of part of M. Peeters' magnificent group, and another showing part of the interior of the special building in which the Orchids were housed.

ORCHID PORTRAITS.

CYPRIPEDIUM × I'ANSONI.—*Journ. Hort.*, 1903, i, p. 397, with fig.

CYPRIPEDIUM × MRS. PITT.—*Journ. Hort.*, 1903, i, p. 377, with fig.

DENDROBIUM NOBILE NOBILIUS.—*Gard. World*, 1903, p. 469, with plate, fig. 1. VAR. ROTUNDIFLORUM.—*l.c.*, fig. 2.

LÆLIA DIGBYANA.—*Gard. Mag.*, 1903, pp. 306, 307, with fig.

LÆLIO-CATTLEYA × DORA MAGNIFICA.—*Garden*, 1903, i, p. 321, with fig.

MILTONIA VEXILLARIA.—*Gard. World*, 1903, p. 423, with fig.

ODONTOGLOSSUM CRISPUM VAR. PERSIMMON.—*Journ. Hort.*, 1903, i, p. 441, with fig.

ODONTOGLOSSUM × KEGELJANI.—*Gard. World*, 1903, p. 401, with fig.

ODONTOGLOSSUM CIRRHOSUM PITT'S VAR.—*Garden*, 1903, ii, p. 376, with fig.

PHALÆNOPSIS × YOUNGII.—*Journ. Hort.*, 1903, i, p. 421, with fig.

CORRESPONDENCE.

(Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.)

J. S. A. Catasetum atratum, a well-known Brazilian species, though rare in cultivation. The treatment given seems about correct. The female flowers may appear if you grow the plant well.

W. F. O. The seedling is probably a form of Lælio-cattleya × Hippolyta, but several of these Lælia cinnabarina hybrids are difficult to distinguish, and you give no clue as to how you obtained it. The veining on the front of the lip, however, suggests Cattleya Mossiæ as the other parent.

A. L. J. Three forms of Odontoglossum × Andersonianum. The others are O. crispum, but we are not sure which of the innumerable named varieties they represent.

F. B. The Lælia purpurata sent is a good form, near the variety praetexta, but the white area is large and broken up by several radiating purple nerves. The other flower is Cattleya Skinneri.

X. A rather full article on the Rules for Latinising names was given three years ago (*O. R.*, viii, pp. 235—238), to which you should refer.

J. B. Unavoidably postponed till next month.

W. B. Broughtonia sanguinea is probably the best of the Jamaica Orchids, but is not often met with here in really fine condition.

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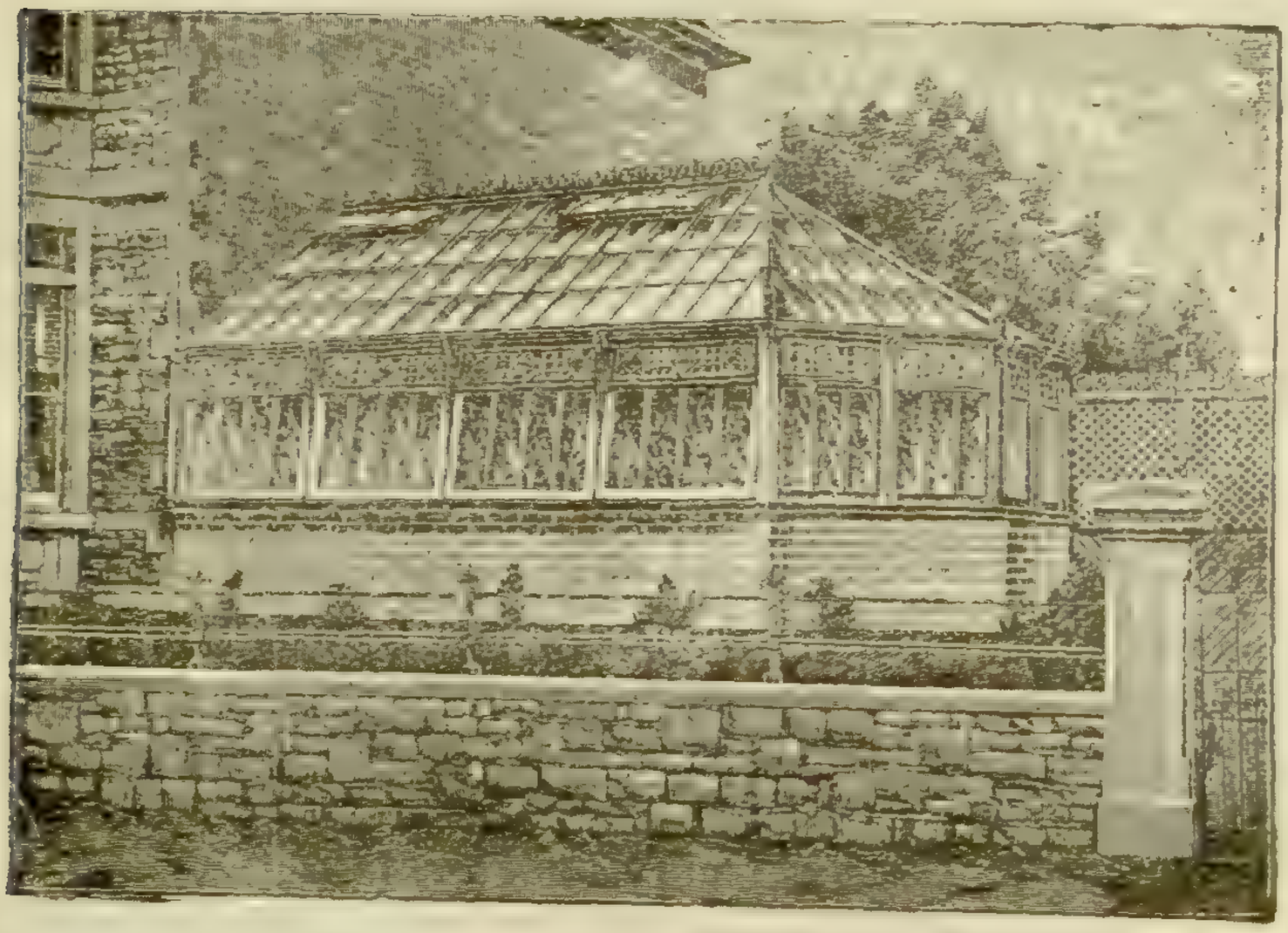

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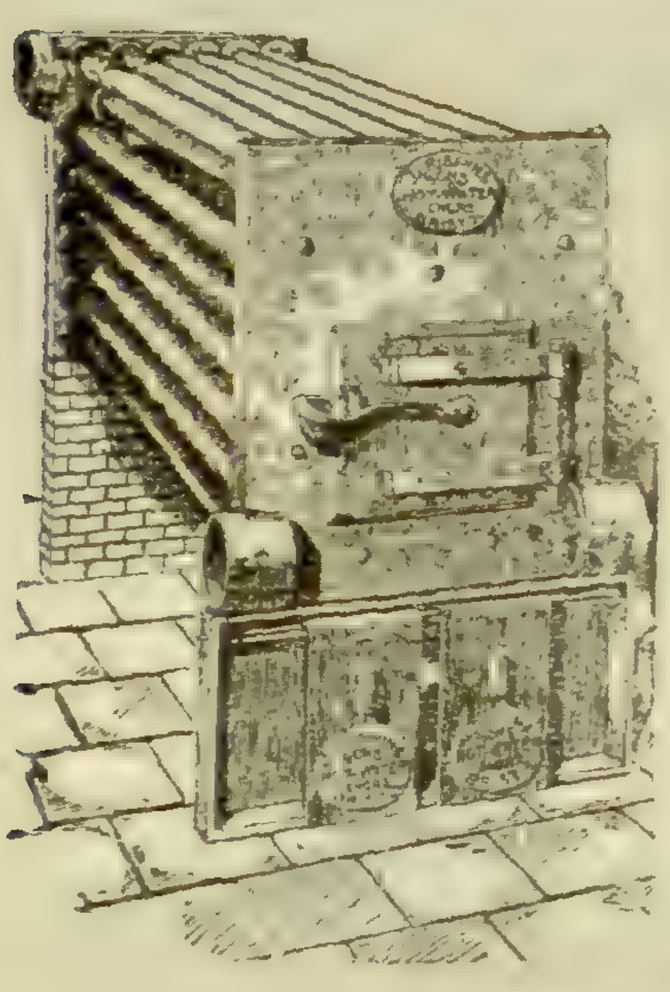

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ORCHIDS AT GHENT.

(*Concluded from page* 189.)

WE next called at the establishment of MM. L. de Smet Duvivier of Mont St. Amand, and here we found a good and varied collection, including a number of interesting little *curios*. M. de Smet, it may be added, was the winner in the nurserymen's class for 75 Orchids, so that his best plants were away at the big Show.

Among the interesting things noted were some good Odontoglossums, including forms of O. crispum, O. pulchellum, O. cirrhosum, O. sceptrum, O. mirandum, O. gloriosum, O. Pescatorei, O. polyxanthum, O. Sanderianum, O. × Hallii, O. × Coradinei, and O. Rossii, with the allied Mesospinidium sanguineum, and the very rare and interesting little Bolivian Neodryas Sacciana in good condition. It bears panicles of small orange and brown flowers. There were also several plants of Cymbidium Lowianum, and a plant of the rare C. grandiflorum with eight flowers (the upper one having been fertilised by some means), C. eburneum, Lycaste Skinneri, Oncidium Kramerianum, the rare O. unicorne, good examples of O. Gardneri, Miltonias cuneata and vexillaria, Promenæa xanthina, Vanda Amesiana, Lælia Jongheana, L. × Latona, a good plant of Dendrobium Kingianum covered with flowers, Zygopetalum Mackayi, Masdevallias × Pourbaixii and ignea, Cypripediums × Crethus and Dayanum, Epidendrum Stamfordianum and the rare E. polybulbon, and some good Cattleyas, as C. Loddigesii, C. × intermedia and C. Schrœderæ. Good examples of the two latter were seen carrying respectively four and five spikes of flowers. We noted also a plant of Brassolælia × Gratrixiæ in flower, and some of the commoner things were passed over unnoticed. It was interesting to find a collection not entirely limited to showy things, and of course there were a good many other things not then in flower.

From there we passed on to the establishment of M. Emile Praet, of Mont St. Amand, and here we found Orchids extensively grown, particularly Odontoglossums. M. Praet was the winner of the prize in the nurserymen's class for the best fifty Orchids, also for the best specimen of Oncidium Marshallianum, and his plants were particularly well grown.

Among Odontoglossums in flower we noted a lot of good O. crispum, luteopurpureum, triumphans, Pescatorei, gloriosum, × Andersonianum, Rossii, and × Adrianæ, one of the latter having broad very pale segments and few spots. We were also interested to see a few seedling Odontoglossums. This house also contained a lot of Masdevallia coccinea, and we noted also some good Cœlogyne cristata and its variety alba.

In other houses we saw some good Cattleyas, examples of C. Warneri, Mendelii, and Trianæ, together with Lælia purpurata and cinnabarina in good condition. Oncidium Cavendishianum carried a spike of forty flowers, and O. Marshallianum was very good, the remaining plants noted being Lycaste Skinneri, Cypripedium villosum, × Leeanum, × Harrisianum, and good examples of C. × Lord Derby and C. × Medeia, with some commoner things.

At the establishment of M. Pynaert the Orchids grown are chiefly Cypripedes, and these are numerous. Among those noted in flower were good examples of C. Lawrenceanum, × Lecanum, villosum, × Lathamianum, venustum, × Germinyanum, × Godseffianum, × gemmiferum, hirsutissimum, × Pollettianum, × Measuresianum, × melanophthalmum, × politum, exul, Druryi, and a pretty hybrid between C. Lawrenceanum and Mastersianum, called × Wm. Matthews. M. Pynaert had also some plants away at the Show, having gained the premier prizes in the nurserymen's classes for 25 and 15 Cypripediums. These were for the most part well-grown and finely flowered examples. We noted also a number of Cattleyas in the collection.

M. JULES HYE'S COLLECTION.

The collection of M. Jules Hye de Crom, it is well known, is one of the finest amateur collections in Belgium. It is situated in the Coupure, quite close to the Exhibition, and it seems unfortunate that M. Hye has not exhibited his plants there on the last two occasions, for in 1893 he won the coveted Gold Medal offered by the King of the Belgians for the best collection of one hundred exotic Orchids. A short account of the collection appeared in our sixth volume (pp. 206, 207), but since that time it has been moved and considerably enlarged. It now consists of at least thirteen houses, of quite modern construction, and all covered with lath roller blinds, so that M. Coen, the able *chef de culture*, is well equipped in this respect. During our recent visit to Ghent we had the pleasure of inspecting the collection and of taking the following notes.

In the first house entered we found good batches of Miltonia vexillaria, cool-growing Cypripedes, and Odontoglossums, many of the latter throwing up spikes. We also noted about a dozen Dendrobium nobile Cooksonianum. The next two houses were chiefly devoted to Odonto-

glossums, the first of them showing numerous spikes, and one plant we noted had enormous bulbs.

The fourth house was chiefly devoted to Cattleyas and Cypripediums, and here was pointed out a nice plant of the rare Cattleya Warneri alba. Two nice forms of C. Schrœderæ were in flower, one of them being nearly white. Various Cattleya pods also told of hybridising operations in progress, and we also noted some pods of Miltonia Warscewiczii, a batch of 22 plants of the handsome M. × Bluntii Lubbersiana, and Lælia Jongheana bearing a two-flowered spike.

We now entered another Odontoglossum house, where we noted some good things in flower, including a good form of O. × mulus, O. triumphans latisepalum, forms of O. × loochristiense, one of them carrying a fine spike of fourteen flowers, O. × Adrianæ, O. Pescatorei, and among forms of O. crispum one bearing a spike of ten very round lilac-coloured flowers. Many others were not yet expanded. Oncidium incurvum album was also throwing up flower-spikes. Here was a nice batch of about sixty seedling Odontoglossums, some from O. polyxanthum × cirrhosum being about half grown, and we noted also some old back bulbs set apart for propagating purposes. These were placed in pots and kept moist, and were just beginning to break. The next house was also devoted to cool Orchids, including many Odontoglossums in flower and spike. Miltonia Warscewiczii in flower, and a lot of Masdevallias, including M. Veitchiana, coccinea, ignea, × Pourbaixii, caudata, and Estradæ.

Following this came a house largely devoted to Cattleyas, in which C. Mendelii was in flower, and a batch of C. Warscewiczii was doing well. Phaius × Norman and Cymbidium × eburneo-Lowianum were also in bloom, and it was very interesting to see a fine plant of Cypripedium × Sallieri Hyeanum, which was the mother of all the numerous forms of C. × aureum which have been raised in the collection. Some of these were in flower in the next two houses visited. We cannot discuss their characters very fully in an article of this kind, but the wide range of variation was remarkable, and would be almost incredible were it not for the fact that every stage of the history of the hybrid is known, from the original crossing with C. Spicerianum. Some of the forms closely resembled C. × Leeanum, and were indeed taken for forms of it until the facts were pointed out, while others were absolutely without spots. One plant bearing six flowers was said to have been in bloom for five months. In the same two houses we noted a very good form of C. villosum bearing three flowers, a good C. Godefroyæ leucochilum, Platyclinis glumacea with seven spikes, a batch of Cymbidium eburneum, some of them being in flower, also a batch of Miltonia vexillaria, just beginning to flower, with two good forms of M. × Bleuana.

In the tenth house visited we found a large number of Cattleyas and Cypripediums, some of them bearing capsules. Also plants of Angræcum sesquipedale, one being in bud. A number of the Cypripediums were in flower, but we did not particularly note them, and a similar remark applies to the next two houses, which were largely devoted to Odontoglossums.

The last house visited was more miscellaneous in character, and we were much interested in looking through a batch of seedling Cypripedes and others, and speculating on what the different crosses would produce, one particularly promising cross being C. × aureum virginale × C. Lawrenceanum Hyeanum. Some good plants of Cattleya Leopoldi × Brassavola Digbyana should flower soon. But this part of the subject may be left till the different seedlings reach the flowering stage. Here we also noted plants of Dendrobium thyrsiflorum and Parishii in bud and flower, Cypripedium × Annie Measures, Oncidium ampliatum with ten spikes, Cattleya Schilleriana in bud, and a good batch of Miltonia vexillaria.

The foregoing are somewhat hasty notes taken in a large and very interesting collection, but it may be added that, owing to the extraordinary lateness of the season, things were backward, and there was less in flower than would otherwise have been the case; in fact, it was snowing during part of the time that we were there. M. Jules Hye is an enthusiast in Orchid culture, and his gardener, M. Coen, an expert of considerable experience, and we shall hope to hear more of some of the interesting things under his charge.

ORCHIDS AT HIGHBURY.

THE Orchids at Highbury are looking wonderfully well. The many beautiful hybrids, of which there is now a fine collection, have made a grand show of late. Many have been raised at home, and have produced some excellent varieties. On a recent visit the Show House was indeed gay with flowers. The following are a few lovely varieties amongst many then noted:—Brassocattleya × Pocahontas (C. Eldorado × B. Digbyana), Brassocatlælia × Mackayi (Lælio-cattleya × elegans × B. Digbyana), Brassolælia × Gratrixiæ and B.-l. × Veitchii, Lælio-cattleya × Mrs. Astor, L.-c. × Ascania, L.-c. × Aphrodite, and L.-c. × highburiensis, a magnificent variety.

Of species there were noble examples of many grand old kinds, a fine plant of Cattleya Skinneri alba with three spikes, Cypripedium niveum, a beautiful plant with 21 flowers, a plant of Coelogyne Massangeana, with enormous bulbs and long spikes, and well-flowered plants of Angræcum sesquipedale, Cirrhopetalum Collettii and Pescatorea cerina.

H.A.B.

ODONTOGLOSSUM CRISPUM.

MR. COOKSON raises an interesting but very difficult question (*Gard. Chron.*, 1903, i, p. 410) in enquiring:—"When is a crispum not a crispum?" He remarks:—"Being an amateur, without any botanical education, I have great respect for those whose botanical training and observation places them in the position of acting as our teachers and guides, and should be glad of a reply to the question at the head of this letter, if some expert will kindly enlighten me. We are told that pure crispums have undivided crests, which, in the case of supposed luteopurpureum natural hybrids, are divided. My trouble is that we have spotless, round, white-flowered crispums with divided, in fact, very palmated crests. We also have very spotted Odontoglossums (I dare not say whether crispums or Wilckeanums) with undivided crest; but to add to our troubles we have in spike a pure white, very round variety, some of the flowers having divided and some undivided crests! Is this last named a crispum or a Wilckeanum? or a 'Wilckeano-crispum'? To the simple minded amateur it is an undoubted crispum, of excellent form, but I feel absolutely certain that if I carefully cut off the crest and sent it to one of our authorities they would unhesitatingly call it a hybrid!"

The question is an extremely difficult one to answer, because O. crispum in a wild state grows and hybridises with several other species, and hybrids are often erratic in the way they combine the characters of their parents. For example, the crests of typical O. crispum and typical O. luteopurpureum are widely different, and if the two species were crossed together it might be supposed that the crest of the hybrid would be just intermediate. But experience teaches us that such a hybrid might have the crest either three-fourths crispum or three-fourths luteopurpureum—I am not sure whether both conditions could not be found in a large batch of seedlings—and consequently it is not safe to form a judgment on a single character.

Mr. Cookson's query might be put in another way, namely:—"How much of the wide range of variation seen in the plant known in gardens as Odontoglossum crispum is due to polymorphism pure and simple, and how much to crossing with other species?" The question cannot at present be answered with confidence. Comparatively recent experiments have shown us what several hybrid Odontoglossums are like, but years before that, certain wild forms of intermediate character were recognised as natural hybrids. It was a matter of judgment, some said merely a pious opinion, but several such cases have now been proved by experiment. The answer to Mr. Cookson's question is also largely a matter of judgment. We know that O. crispum grows in the Bogota district in company

with O. gloriosum, O. Lindleyanum, O. luteopurpureum, and O. Hunnewellianum, and natural hybrids with each of these have been recognised. If they are fertile (and we have good reason to believe that they are) these hybrids may again cross with the parent species, and with each other, until the characters get hopelessly mixed. We know approximately what each of these species is like, but we do not know the absolute limit of variation—certainly not in the case of O. crispum. We import crispums by the thousand, and when the plants flower they are not all true. We easily recognise and exclude the species above named, also the hybrids, × Andersonianum, × Coradinei, × Wilckeanum, and × Adrianæ. The residuum we call O. crispum, but it is still a polymorphic lot, and in some of the forms we trace resemblances to some of the recognised hybrids, and perhaps suggest that they may be secondary hybrids. But what more can we do? One thing, at least, is possible, and that is to implore Mr. Cookson, able hybridist as he is, to cross a typical crispum with good typical forms of O. × Andersonianum and O. × Wilckeanum (or the reverse, or both). The examination of a few flowers of such an origin would go a long way towards answering Mr. Cookson's question.

I may add that I have seen flowers which to all appearance were pure O. crispum, though they had the lateral teeth of the crest somewhat developed, and this one mentioned by Mr. Cookson may be such a form. This, of course, does not prove it to be of pure descent, and it would be interesting to know what O. crispum is like in a locality where it grows by itself, and where the question is not complicated by hybridity.

R. A. ROLFE.

DENDROBIUM FALCONERI.

I ENCLOSE you a photograph of Dendrobium Falconeri, which, though only a small plant, had fifty blooms on. I think it might be interesting to reproduce this, as so many of the Orchid growers in this part of England say they cannot flower it at all freely. The plant in question, together with a fellow one, was grown with other Dendrobes in a warm house last summer, then cooled off in the autumn, and during the winter all water was withheld from it, and the plants almost frozen, with the result that on bringing the plants back to the warm house this spring innumerable buds began to appear. The photo was taken by myself when the bloom was partly past its best.

EDWARD P. COLLETT.

[The photograph represents a well grown little specimen, but is hardly suitable for reproduction, partly, no doubt, because of the circumstance mentioned. It is a common experience with growers to find this species

difficult to grow, but we find the Intermediate House generally recommended in preference to the Warm House, and Mr. Burberry once remarked:— "The most healthy plant of Dendrobium Falconeri that I have seen, and one that actually increases in size year by year, is grown in the temperature of a greenhouse the whole year round, on the stem of a living tree-fern, and naturally shaded by its large fronds."—*Orch. Rev.* ii., p. 87. Abundance of water, from the syringe or sprayer, is required during growth, and afterwards a long cool rest.—ED.]

PAPHIOPEDILUM × PETRI.

SOME considerable time ago (*Orch. Rev.*, iv., p. 366) it was pointed out that the above plant is probably a natural hybrid between Paphiopedilum Dayanum and P. virens, but the details were not given, because it was hoped that materials of P. × woodlandense, an artificial hybrid between the same two species, would be available for comparison. Such, however, has not been the case, and as the question has cropped up again it may be interesting to review the known facts.

The first record occurs in 1880, when Reichenbach described Cypripedium Petri (*Gard. Chron.*, 1880, i., p. 680). The author described it as very near C. Dayanum, but differing in numerous details, notably in having smaller flowers, with relatively shorter sepals and petals. It was discovered by Messrs. Peter Veitch and F. W. Burbidge, and was dedicated to the former.

In the following year C. Burbidgei, Rchb. f., was described (*Gard. Chron.*, 1881, ii., p. 38). It was said to be much in the way of C. javanicum and C. virens, but very easily distinguishable by the staminode, while the lip resembled C. Petri and C. Dayanum. Reichenbach remarked:—"My first acquaintance with this was undoubtedly made by the assistance of Mr. S. Low. . . . Lately I obtained it . . . from Messrs. Veitch. It grew together with Cypripedium Petri, and it was more gay in its colours." It was dedicated to Mr. Burbidge.

Mr. Day fortunately made coloured drawings of both these plants. Of C. Petri (*Day Coll.*, xxxii., t. 53), he remarked:—"Introduced from Borneo by Messrs. James Veitch & Sons . . . it is closely allied to my old C. virens, . . . and indeed I can hardly see any difference." Of C. Burbidgei (*Day Coll.*, xxx., t. 13) he remarked:—"Imported by Messrs. Hugh Low & Co. from Java recently, having been collected by their traveller, Mr. Smith. It is very like C. javanicum, so much so indeed that I thought it was that species, but having observed and read the description of C. Burbidgei, . . . I sent to Prof. Reichenbach this flower, and have his answer saying it is his Burbidgei."

A comparison of these figures with those of C. Dayanum and C. virens, and of authentic dried flowers of all the four kinds, comfirms me in the opinion that the two former are natural hybrids between the other two. It soon became known that all were natives of Borneo, and Messrs. Veitch state that Mr. Peter Veitch and Mr. Burbidge also collected C. Dayanum, the locality being at the foot of the Marie-Parie Spur of Mt. Kina Balu (*Veitch Man. Orch.*, iv., p. 21). They indeed consider C. Petri and C. Burbidgei as synonymous with C. Dayanum, but this is certainly not correct. There is a published figure purporting to be C. Petri (*Gard. Chron.*, 1887, i., p. 577, fig. 110), but in my opinion it is C. Dayanum. It was taken from a plant in Mr. Tautz's collection, and is certainly neither the one represented by Mr. Day nor that grown by Messrs. Veitch. The locality, "Java," mentioned by Mr. Day under C. Burbidgei, I strongly suspect to be a mistake. C. Dayanum is well known to be very pale in colour, the petals comparatively long, and the dorsal sepal with very long cilia. C. virens has a smaller green flower, with the apical halves of the petals reddish purple. Mr. Day's drawing of C. Petri is about intermediate in every respect, while that of C. Burbidgei is rather nearer to C. virens in size and shape. Dried flowers of the two forms are equally intermediate in character and less diverse from each other than the forms figured by Mr. Day, which, however, are almost identical in the colour and markings of the leaves. The two forms are extremely rare, and the facts pointed out, taken in connection with our knowledge that the suggested parents grow intermixed, fully warrant the conclusion that they are forms of a natural hybrid between the two species suggested, and it is unfortunate that flowers of C. × woodlandense are not yet available for comparison. In order to test the question the two species have been again crossed together, and a capsule of apparently good seed was produced, but it failed to germinate. It is to be hoped that someone else will attempt the cross and let us know the result.

R. A. ROLFE.

BULBOPHYLLUM ERYTHROSTACHYUM.—A species omitted from my note on "Bulbophyllum clavatum and its allies," at page 190, is B. erythrostachyum (*Rolfe*), which has been cultivated at Glasnevin for some considerable time. It is a native of Madagascar, and is allied to B. clavatum (*Thouars Orch. Iles Afr.*, t. 99), but differs in having monophyllous pseudobulbs, a broader leaf, and the rachis as much as five lines broad, and of a uniform lurid purple red from base to apex. The flowers are scattered, and light green, with three dull purple stripes on the dorsal sepal. The leaves and inflorescence are about six inches high. The colour of the inflorescence gives it a rather striking appearance.

R. A. ROLFE.

PAPHIOPEDILUM VIRENS.

THE annexed illustration represents a good plant of the Bornean Paphiopedilum virens, grown in the collection of O. O. Wrigley, Esq., Bridge Hall, Bury. The photograph was sent by Mr. Wrigley, together with a second one showing a form with rather narrower, more acute dorsal sepal and petals, the latter being also less reflexed. Both were imported in the same clump, among a lot of P. Dayanum, and purchased from Messrs.

FIG. 37. PAPHIOPEDILUM VIRENS.

Hugh Low & Co. some few years ago. The species is rather rare in cultivation, probably because much less showy than many others, but, as Mr. Wrigley remarks, it is very distinct from any other cultivated species. It was originally described by Reichenbach in 1863 (*Bot. Zeit.*, 1863, p. 128), from materials supplied by the late John Day, Esq., of Tottenham. Mr. Day has also left some excellent drawings of it, both in pen and ink and in water-colour, (*Day Coll.*, ii., pp. 19-20, ix., pp. 33-34), together with

the following record:—"Imported from Borneo, 1858; collected by Mr. Hugh Low. Flowered here first in 1860, the first time in Europe. I had the only plant which arrived alive. It was imported in the same box from Borneo with Cypripedium Dayanum, of which I also bought the entire stock." It was also figured by Reichenbach (*Xen. Orch.*, ii., p. 154, t. 162). For a long period no other plant was known, and in 1889 Messrs. Veitch remarked:—"There is no record of its having been imported since (*Veitch. Man. Orch.*, iv., pp. 35, 36). In that work it is given as P. javanicum var. virens, but is now recognised as quite distinct from P. javanicum, a species at present extremely rare in European collections, if indeed actually represented. The flowers are green for the most part, with the apical halves of the petals light reddish purple.

NOTICES OF BOOKS.

Orchids: Their Culture and Management. By W. Watson. New edition, revised throughout and greatly enlarged, by H. J. Chapman. 8vo. pp. 558, fig. 182, and 20 coloured plates. London, L. Upcott Gill, Chancery Lane.

THE first edition of this work, by W. Watson and W. J. Bean, appeared in 1890, and the publishers remark that a new edition being called for, and the original author not being able to undertake the heavy work of alterations and additions rendered necessary by lapse of time, the task was placed in the capable hands of Mr. H. J. Chapman, one of the most able Orchid growers and hybridists in the country.

The Introductory portion contains information on the structure of the Orchid Houses, shading, watering and damping, ventilation, stoking, temperatures, imported Orchids, insects and other pests, Orchids as town-plants, structure and other peculiarities, hybridisation, selection of parents, method of sowing the seeds, potting, &c., with a list of species, varieties, and hybrids, which occupies the great bulk of the volume. The genera and species are arranged alphabetically, and the hybrids, natural and artificial, are placed at the end of the genus, arranged alphabetically, followed by the parents and raiser. At the end of the work is a chapter on British and other hardy Orchids, with a chapter for beginners.

The figures are partly from sketches, but the majority from photographs taken by Mr. Chapman, and one only has to glance at them to see how infinitely superior is the latter method, both for accuracy and effect. A comparison of the figures of Cypripedium Fairrieanum with a group of five of its hybrids (pp. 161 and 144) will enable anyone to realize this, the latter being marvellously life-like, but of the former one might ask whether the artist forgot to put in the very characteristic veining of the dorsal sepal.

The coloured plates are reproduced by the three-colour process from water-colour drawings, mostly by Miss G. Upcott Gill, and some of these are very good, considering that the process is still in its infancy. Epiphronitis × Veitchii, for instance (which bears the familiar initials "N.R."), though in some cases the colouring leaves room for improvement, and one or two might have come out better if taken from the subjects direct. But their arrangement must be described as promiscuous, for Dendrobium × Ainsworthii intertextum is among the Cirrhopetalums, D. formosum among the Odontoglossums, a group of three hybrids among Hardy Orchids, Vanda tricolor among the Angræcums, Odontoglossum × Wilckeanum and excellens among the Oncidiums, and if Sophronitis grandiflora is not out of place in a chapter for beginners, it is hard to see what connection Odontoglossum coronarium miniatum has with Hybridisation. And there is no reference whatever to these plates in the text (while all the black and white figures are cited), so that one wonders whether they were not thrown in as an afterthought. As a matter of fact Calanthe × Kenneth and C. × triumphans are not included in the text at all.

Some unfortunate blunders are introduced with the additions. The author of Coryanthes Bungerothii is not N.E. Br., nor is it a synonym of Catasetum Bungerothii. Rolfe is not the author of the genus Cryptophoranthus, nor yet of Phaius Warpuri, and, by the way, we are glad to see that Mr. Chapman now adopts Phaius simulans. Fig. 165 does not represent Stanhopea tigrina (but S. oculata), and Cypripedium × Rolfeæ should have been Rolfei. C. Victoria-Mariæ is not a variety of C. venustum, and "Bifrenaria aurantiaca R. X. O., i., t. 94, f. 1," is not a synonym of B. inodora. The descriptions appear to stand much as they did, and thus the account of Cycnoches is completely out of date, for our knowledge of the genus has been revolutionised since the first edition was written. In the cultural details, however, Mr. Chapman is thoroughly at home, and these we believe are thoroughly well done, which after all is the main purpose of the book.

Das Pflanzenreich. Regni vegetabilis conspectus: Orchidaceæ Pleonandræ. Mit 157 Einzelbildern in 41 Figuren. Von E. Pfitzer (Wilhelm Engelmann, Leipzig).

A recently issued part of the above work is devoted to the order Diandræ, here called Pleonandræ. The characters of the suborder, tribes, genera, and species are given in Latin, while the details of anatomy, morphology, and geographical details are in German. The two tribes are called Apostasiinæ and Cypripedilinæ, and Dr. Pfitzer now adopts the latest view (*Orch. Rev.* iv. pp. 328—330) that the former contains three genera and the latter four, while he abandons his genus Uropedilum. Of Cypripedilum

28 species are admitted, and these are divided into three series, Arcuinervia, Retinervia, and Flabellinervia, the former being again divided into four sections, the largest being Encypripedilum, which includes most of the hardy species known in gardens. Phragmopedilum is divided into five sections, two of them containing only a single species, the two thus isolated being P. Schlimii and P. caudatum. Paphiopedilum is extensively sub-divided, the forty-seven species recognized being grouped in three subgenera. one of which is again divided into three sections and another into eleven, seven of these consisting of only a single species. Thus P. Rothschildianum forms the section Gonatopedilum, P. Stonei the section Prenipedilum, P. Parishii section Mystropetalum, P. hirsutissimum section Stictopetalum, P. Druryi section Thyopetalum, P. Fairrieanum section Ceratopetalum, and P. Spicerianum section Cymatopetalum. P. Charlesworthii is placed in a section called Neuropetalum, with P. exul, P. insigne, P. villosum, and P. dilectum, but the vegetative organs are scarcely distinguishable from those of P. Spicerianum, and the floral characters would as well exclude it from one group as the other (if they did not make a new section for it). The fact is the last five sections should have been united. The habitat of P. Charlesworthii is also incorrectly given, and should be Shan States (see *O. R.* iii., p. 170).

Several other details are open to criticism. For example, P. Boxallii is made a variety of P. villosum but P. dilectum retained as a species, though it is only a poor form of the first named. P. Wolterianum is synonymous with P. Appletonianum (which also appears again as P. callosum var. sublæve); and P. amabile with P. Bullenianum. P. venustum does not belong to the same group, while P. Mastersianum, which does belong, is placed elsewhere. P. nigritum is not a variety of P. barbatum, but a species from Borneo. The suggestion that it may be a natural hybrid between P. purpuratum and P. barbatum is singularly infelicitous, one being a native of Hongkong, the other of Malacca. Substitute P. Spicerianum (and Assam) for barbatum, and the remark applies equally well to P. × Lebrunianum. In fact, natural hybrids are unfortunate, for P. Rothschildianum × Dayanum, and P. villosum × insigne, are both enumerated twice over. P. Bullenianum is given as one parent of P. × siamense, when it should have been P. Appletonianum. P. × Shipwayæ, Rolfe, is omitted, but the reference is given, though placed after "C. Shipwayæ, Shipw. Sem. hortic. 1898, 503," which is only an echo of the preceding; an utterly *topsy-turvy* arrangement. P. × Petri should have been included here, not placed as a variety of P. Dayanum, while P. Burbidgei, which is treated as a species, is simply a form of the same. Cypripedium epidendricum was formerly made a species of Paphiopedilum, now it is wrongly said to be a Catasetum. It is a Cyrtopera.

Artificial hybrids are enumerated at the end of each genus, primary ones under one of the two parents, preceded by a number, to which a cross-reference is given under the second parent, and a list of names, secondary and doubtful ones, alphabetically afterwards.

Addenda to Sander's Orchid Guide. Sander and Sons, St. Albans.

MESSRS. SANDER have issued an Addenda, in which the crosses recorded since the issue of their Orchid Guide are enumerated under three tables, as before, each occupying nine pages. The information consists of (1) Name, (2) Seed parent, and (3) Pollen parent, and is repeated under each table. A glance at these tables, Messrs. Sander remark, "will help to avoid the too prevalent duplication and synonymy existing in the present nomenclature of hybrids." We hope it will, but we find the hybrid between Cypripedium villosum and C. × Leeanum under six different names in the Addenda, and as it appeared under nine others in the body of the work the outlook is not hopeful. The hybrid between Lælia purpurata and Cattleya Mossiæ formerly appeared under five names, now there are two additions. Or take hybrids not previously enumerated, and we find the crosses between Odontoglossum crispum and O. nobile under six different names, between Lælia purpurata and Cattleya Schilleriana also under six, and between the last named and C. Mossiæ under five. And each is repeated three times over, without any clue to the raiser, or to the original name. Of course the names originated elsewhere, and are merely brought together here for what they are worth. And the reader can take his choice.

CALENDAR OF OPERATIONS FOR JULY.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

THE principal work now will be watering, damping, cleaning, and other similar operations conducive to the well-being of the plants in the different departments. There will be few Orchids demanding attention in other directions, as the majority will have been either top-dressed, re-mossed, or freshly potted. In large collections, however, there are always individual plants of various species that require fresh material, and, no matter whether seasonable or not, these individuals should be attended to when occasion demands. However, the first and principal duty to be performed now is to see that no plant suffers for want of the necessary liquid element, and that they be kept clean and perfectly free from insect pests.

In order to aid the condition last mentioned, the houses should have a mild fumigation at frequent intervals, with the XL all vaporiser. With this preparation the plants may be fumigated, whether they be in bloom or not, without any fear of injury resulting. If possible a dull evening should

be selected for this operation, and in bright weather it should be left till late in the evening, when the sun has lost its power to harm. For a day or so afterwards the houses should be shaded earlier, so that sunlight can do no harm, this being the means of preventing injury to the foliage or blooms, which is often attributed to the fumigation itself.

In the matter of sponging Orchids, nothing is needed other than clean rain water, excepting when there is an extra infested plant, and then a little lemon oil may be added, which is very effective in removing red spider, etc., from the foliage. It is not advisable to sponge any plant when there are young and succulent leaves or growths that are likely to be injured, but if the operation is absolutely necessary, it should be done with the utmost care, to prevent any breaking or disfigurement of the leaves or growths.

It will be advantageous to take a glance through each department to note the progress made during the last six months, and pay attention to anything that should have the grower's careful consideration and attention during the summer months. We will start with the Cool house, and here we find that the majority of the Odontoglossums have done flowering for this season—which, by the way, has been exceptionally good—and should now be given a short rest prior to starting into growth again, by keeping them rather drier at the root. If not treated in this manner new growths will appear almost immediately the plants have bloomed, and thus cause a double exhaustion of the bulbs, and this will tell on the following bulb, which will not perhaps be up to the usual size and strength; whereas, by giving the plant a rest, it will break stronger and produce more satisfactory results.

Ada aurantiaca has also flowered, but is still developing its growths, and therefore should still be watered freely. Oncidium macranthum and others of this section are always more or less in a state of activity, and may be given water accordingly. O. crispum, Marshallianum, and allied species, should have less applied direct so soon as the spikes are cut, for the same reasons as those given with reference to Odontoglossums. O. varicosum is now starting freely, after having enjoyed a good rest, and in their case more water will soon be needed.

Masdevallias have made excellent progress, both in foliage and flower, the latter seldom attaining such richness of colouring as they have this season. Those of the caudata and Harryana sections have now passed out of bloom, but this will make no difference to the quantity of water required, as root action and leaf development are still in a vigorous condition. If any of the small growing kinds are in material which has become sour or decayed they would be benefited if this be renovated, though it is not advisable to pot at this season, excepting when necessary from the above cause.

In the warm division of the Cool section there are a few Miltonia vexillaria yet in bloom, the majority being over, but a general treatment is still possible as far as watering is concerned, though with regard to spraying overhead only those that have flowered should be so treated. The Pleiones are now fast forming their bulbs, and should have every encouragement to assist in the development of good, sound bulbs, by giving an abundance of water, which may be occasionally diluted with liquid cow manure, and the leaves kept clean and free from red spider. The tips of the leaves will soon begin to decay, but this is quite natural, and these should not be continually trimmed off with the mistaken idea of enhancing the appearance of the plants.

Cypripediums of the cooler section, amongst which are included such as C. insigne, villosum, Boxallii, and the numerous hybrids derived from these parents, will need watering almost daily, as will also a large number of the warmer-growing kinds, always excepting the concolor section, Stonei, philippinense, Parishii, Lowii, Rothschildianum, Haynaldianum, and others of a similar nature. Selenipedium Schlimii is often a difficult subject to manage; it should be potted in a compost of half peat and half loam, with a little moss, and stood in a moist position in an Intermediate house, always giving it plenty of water at the roots, but do not on any account allow any to lodge in the leaves. When grown well it is a most desirable Orchid, but otherwise it is a continual eyesore.

In the Cattleya House there will now be plants in all stages of growth; C. Warneri, Gaskelliana, and Warscewiczii will be in the flowering stage, and the newly made bulbs will soon emit quantities of new roots; hence water in larger quantities will be required. C. Trianæ and labiata have their growths in a forward stage, and in many instances are showing sheaths They, too, should not suffer from want of water, but always allow the material to get on the dry side before another supply is given. C. Mossiæ and Mendelii should only be watered in moderation, for though rooting freely, the moisture in the atmosphere will go a long way to satisfy the wants of these two species. The same remarks will apply to Lælia purpurata. This species should not be encouraged to make growth too soon, for it is those bulbs that are produced in the autumn that give the best results in the way of flower sheaths. C. Bowringiana is now growing strongly, and will need more water, and when new roots spring from the base of the pseudobulbs new material may be given if required. Re-potting is best done immediately the flowers have gone over. C. Skinneri requires large supplies of water when growing, as also does C. velutina. C. bicolor, and other thin-stemmed species. C. Dormaniana should now be growing freely in a position at the coolest end of this house, and new material may be given in small quantities when root action takes place.

Lælia crispa usually flowers about the end of the month, and is one that will live for a long time without water, as the quantity required direct is so small. L. tenebrosa should be given a good rest after flowering, or the growths produced will be weak and sheathless.

L. anceps should be syringed morning and afternoon now, and otherwise supplied with abundance of water, and, where possible, the shading should be taken off early in the afternoon, and a high temperature induced by closing the ventilators for a few hours, always opening the bottom ones again at night, so that all superfluous moisture may be dispelled. L. autumnalis, albida, furfuracea, and Gouldiana require the same treatment, with the exception that they should not be syringed sufficiently heavily to allow the water to lodge in the young growths, for if it does, and a change of weather from fine to dull takes place, the growths are very apt to damp off.

Inmates of the East Indian House are now growing apace and must not lack moisture, either at the root or in the atmosphere. The deciduous Calanthes are now fairly rooted, and may be watered more freely. The Phalænopses must now be kept in a continual moist condition, thoroughly shaded from all sunshine, and fresh air admitted to them, when that outside is not too dry or cold. With these the lovely Eulophiella Elizabethæ should be grown; it is just now beginning to root from the newly-made rhizome. Water in large quantities may now be given frequently, and until the growths have reached their full development. Vanda Sanderiana is now rooting freely, suspended in a light position, the plants being now well supplied with water. V. tricolor and suavis are flowering and growing nicely in this house, occupying a somewhat shady part. Vanda Amesiana and Kimballiana are not easily grown subjects, and no doubt position has a great deal to do with success or otherwise. Shade well if grown suspended in the Cattleya house, and keep syringed frequently.

With the return of sunny weather very little fire heat will be required, except in the warm divisions. The pipes should be kept only just luke-warm during the night. Ventilation may be given freely at all hours in the Odontoglossum and Masdevallia houses. Partially close the ventilators in the East Indian, Cattleya, and Mexican divisions early enough in the afternoon to raise the temperature 8° or 10° by sun heat, but open them again when finishing up for the night. Maintain in each division a moist, growing atmosphere, and on no account neglect the shading and watering.

If this treatment be consistently followed for the next few weeks the result will be strong sturdy growths, which, when properly matured, will enable the plants to go through the long winter months with safety.

VANDA × MARONÆ.

A REMARKABLE hybrid Vanda was exhibited at the recent Temple Show by M. Ch. Maron, Brunoy, France, under the name of Vanda × Marguerite Maron (teres × suavis), and was described at page 183, as a distinct and handsome form, having erect fleshy leaves, larger than those of V. teres, and laterally compressed, and rosy unspotted sepals and petals, approaching those of V. teres, but the lip more like the other parent in shape and

FIG. 38. VANDA × MARONÆ.

colour. A flower has now been sent by M. Maron, together with the photograph from which the annexed illustration has been prepared. The latter is not as clear as we could wish, but it serves to show the general character of the plant. It also shows that the phrase "unspotted" was not strictly correct. for there are a number of minute purple dots on the sepals and petals, though they are very inconspicuous as compared with those of V. suavis; and it may be added that the plant stood on the back of the

stage and we could not get very near to it. The teres-like habit can be made out, but the leaves are not well shown in the photograph. The flowers most resemble V. suavis, though the influence of the other parent is seen in the enlarged segments and other modifications in shape and colour. The flower measures $2\frac{3}{4}$ inches across, and both sepals and petals are broadly spathulate, the former being 10 lines and the latter 11 lines broad. The colour is pale blush lilac on both surfaces, with numerous minute purple dots in front, especially on the petals. The lip is strongly three-lobed, with the side lobes rounded and light yellow in colour, and the front lobe dilated, 10 lines broad, bilobed, reflexed, and bright purple in colour, with many minute darker dots. The disc is light yellow, lined and dotted with red-purple. It is a very interesting plant, and we believe the first hybrid Vanda raised in Europe. It will be interesting to see it again when the plant becomes stronger.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of this Society was held at the Drill Hall, Buckingham Gate, Westminster, on June 9th, when a very good display of Orchids was seen.

Baron Sir H. Schröder, the Dell, Egham (gr. Mr. Ballantine), received a Silver-gilt Flora Medal for a very fine group, containing Epidendrum × dellense, Cypripedium Stonei, the unique C. S. platytænium, C. × superciliare, C. × Antigone, C. callosum Sanderæ, C. Lawrenceanum Hyeanum, Dendrobium × illustre, Miltonia vexillaria gigantea, Trichopilia crispa, a fine example of Maxillaria Sanderiana, Hexisia bidentata, two fine specimens of Thunia × Veitchiana superba, Odontoglossum × excellens, the original plant, which was shown at the Orchid Conference in 1885, O. crispum roseum, a fine O. c. Rex, O. c. xanthotes, and O. c. Truffautianum, which latter received an Award of Merit. It is a fine white form, tinged with purple, and bearing a large reddish purple blotch on the sepals and lip, and several smaller ones on the petals.

Capt. G. L. Holford, Westonbirt, Tetbury (gr. Mr. Alexander), gained a Silver-gilt Flora Medal for a fine group, containing a magnificent example of Odontoglossum luteo-purpureum, bearing two spikes, with over forty flowers (Cultural Commendation); Lælio-cattleya × Iolanthe, L.-c. × Canhamiana, L.-c. × C. Rex, L.-c. × C. Lady Wigan, L.-c. × tyntesfieldensis, Lælia purpurata Emperor, with a very dark lip, and L. p. fastuosa princeps, having sepals and petals veined with rose-purple, and the lip dark purple.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), was also awarded a Silver-gilt Flora Medal for a splendid group, containing Lælio-

cattleya × Adolphus superba, L.-c. × Canhamiana, Lælia tenebrosa, Vanda tricolor, V. Denisoniana, Miltonia Roezlii, M. vexillaria chelseensis, varieties of Cattleya Mossiæ, C. intermedia Violetta, having a slate-blue lip; C. Mendelii Smeeana, Cypripedium Lawrenceanum hackbridgense, many fine Odontoglossums, and Oncidium triquetrum, the last-named, a dwarf species from Jamaica, with the flowers white, tinged and striped with crimson, **receiving a Botanical Certificate.**

N. C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), showed Phaius × Chapmanii superbus (Phœbe × Humblotii), a particularly fine form, which received a First-class Certificate.

W. Thompson, Esq., Stone, Staffs. (gr. Mr. Stevens), showed Odontoglossum cordatum aureum, the flowers being yellow and white in colour, with no brown (Award of Merit); a finely grown plant of O. crispum with several spikes; and O. × crispo-Harryanum primulinum, having a large branched spike with more than forty flowers, the two latter each **receiving a Cultural Commendation.**

J. W. Potter, Esq., Elmwood, Croydon (gr. Mr. Young), showed the **prettily spotted Odontoglossum crispum Jeanette.**

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Gilbert), showed Lælia × cinnabrosa magnifica, Cypripedium × Annie Measures superbum, two forms of Cattleya Mossiæ, and a fine specimen of C. Schilleriana, bearing **two spikes of six and four flowers.**

Messrs. J. Veitch & Sons, Chelsea, received a Silver Flora Medal for an excellent group, containing Lælio-cattleya × Lycias, L.-c. × Ascania, varieties of L.-c. × Aphrodite, L.-c. × Our Queen, Sobralia macrantha Kienastiana, Masdevallia × Imogen, M. × Curlei, many Cattleyas, some fine examples of Dendrobium Bensonæ, and other plants. An Award of Merit was given to Epicattleya × matutina (C. Bowringiana ♀ E. **radicans**).

Messrs. B. S. Williams and Son, Upper Holloway, staged a good group, for which a Silver Banksian Medal was awarded. Included in it were Platyclinis latifolia, Trichopilia crispa, Cymbidium Lowianum, many Cypripediums, Cattleya Mossiæ, C. Mendelii, and other plants.

Messrs. Sander and Sons, St. Albans, staged a group containing Bletia Shepherdi, Lælia × cinnabrosa, L.-c. × Canhamiana, L.-c. × Arnoldiana, L.-c. × Isabella, L.-c. × Henry Greenwood, and other good things.

THE HOLLAND HOUSE SHOW.

THE second meeting of the month was held on Thursday and Friday, June 25th and 26th, at Holland House, Kensington, by kind permission of the Earl of Ilchester, and was favoured with fine weather. Orchids were well represented, the extensive group contributed by Messrs. Sander & Sons

being excellent in every respect, but the sensation of the meeting was the beautiful plant of Cattleya Warneri alba sent by M. Peeters, of Brussels.

Amateur exhibits were not numerous, but an attractive group was shown by J. Colman, Esq., Gatton Park, Reigate (gr. Mr. Bound). It contained some good Odontoglossum crispum, O. citrosmum, O. luteopurpureum, Sobralia × Veitchii, Oncidium macranthum, Masdevallia polysticta with six spikes, M. bella, some brilliant M. coccinea, Dendrobium moschatum, Epidendrum prismatocarpum, Cochlioda Nœtzliana, Lælia purpurata and × Latona, the remarkable Bulbophyllum barbigerum, Anguloa Clowesii, Epiphronitis × Veitchii, Cypripedium hirsutissimum and niveum, Lælio-cattleya × Lady Miller, Cattleya Mossiæ Reineckeana, &c.

Sir William Marriott, Blandford (gr. Mr. Denny), exhibited a fine pan of Disa × Clio, bearing seven stout spikes and numerous flowers, to which a **Cultural Commendation was given.**

N. C. Cookson, Esq., Oakwood, Wylam-on-Tyne, sent two heavily blotched forms of Odontoglossum crispum, namely O. c. Sanderæ, tinged with purple and heavily blotched with red brown, and O. c. Sibyl, white **heavily blotched with claret purple.**

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Gilbert), showed the fine Cypripedium Lawrenceanum hackbridgense, Lælio-cattleya × Lady Wigan, and L.-c. × Canhamiana splendens, all in excellent condition.

M. A. A. Peeters, Brussels, sent a splendid plant of the rare and beautiful Cattleya Warneri alba, in the most robust health, and bearing a raceme of five very large flowers, of the purest white, with a clear yellow disc to the lip. It gained the double award of a First-class Certificate and a **Cultural Commendation.**

Messrs. Sander and Sons, St. Albans, staged a superb group, occupying a space of about four hundred square feet, the plants being splendidly grown and flowered, and very artistically arranged. A Gold Medal was awarded, besides four First-class Certificates and two Awards of Merit. Among the plants noted were four splendid forms of Lælio-cattleya × Canhamiana, one called Fire King having the front of the lip uniformly deep purple, while Edward Rex was of great size, with white sepals and petals, the lip very open, and rich purple in front of the bright yellow disc; four fine and distinct forms of L.-c. × Martinetii, the variety Flambeau having the sepals and petals of a rich glowing bronzy red, and the lip purple (F.C.), and var. ochracea having buff-yellow sepals and petals, and a paler lip, veined with purple (A. M.); some good L.-c. × bletchleyensis, L.-c. × Catherinæ (L.-c. × Schilleriana × L. longipes, and thus a form of L.-c. × Iris), some good Cattleya Mossiæ, including the varieties Reineckeana, Wageneri, and Victoria, the latter a fine white, with a tinge of rose-pink on the front of the lip (F.C.),

C. Mendelii, C. Warneri, the beautiful C. × Rochrsiana (Mendelii × Hardyana), white, tinged with purple on the sepals and petals, and the front of the lip intense ruby purple (F.C.); a good Vanda cærulea, Angræcum Sanderianum with three racemes, Odontoglossum × Rolfeæ majesticum, with a raceme of twelve very fine white flowers beautifully spotted with purple (F.C.); some good O. crispum, O × ardentissimum Fascinator, a fine white blotched with light purple (A.M.); a form of the rare O. × Horsmanii, a well-flowered Masdevallia Reichenbachiana, M. peristeria, M. muscosa, Cochlioda Nœtzliana, Maxillaria Sanderiana and Hubschii, a fine Epidendrum prismatocarpum with eighteen racemes, Trichopilia tortilis, some good Miltonias, Oncidiums macranthum, leucochilum, pumilum, crispum, phymatochilum, and longipes, the two latter in fine well-flowered clumps, Epidendrum aromaticum and elongatum album, Zygocolax × Veitchii, Catasetum maculatum, Cryptophoranthus Dayanus, Physosiphon Loddigesii, Bulbophyllum barbigerum, Macodes Petola, Pelexia maculata, Gongora gratulabunda, &c., several of the smaller things, it may be added, being unnamed. A fine plant of a Lælio-cattleya that had been grown in leaf-mould for three years was exhibited, turned out of its pot, to show the profusion of roots.

Messrs. Charlesworth & Co., Heaton, Bradford, received a Silver Cup for a very fine group, containing a good Cattleya × Fernand Denis, C. citrina, Epiphronitis × Veitchii, Lælio-cattleya × Remula, L.-c. × Amazone (L. purpurata × C. maxima), L.-c. × Fascinator, L.-c. × Dora, and others, a well-flowered Masdevallia × Imogen, Promenæa stapelioides and xanthina, Catasetum Erstedii, Maxillaria venusta, Oncidium Gardneri with five fine racemes, Dendrobium Parishii, and two good D. Phalænopsis, a form of the rare Vanda × Charlesworthii, Brassia verrucosa with eight racemes, Cirrhopetalum picturatum, a good Bulbophyllum Dayanum, Miltonia Roezlii alba, Epidendrum vitellinum, Brassocattleya × striata, Oncidium hastatum, Cypripedium callosum Sanderæ, and others, Miltonia candida, Phaius × Phoebe, &c.

Messrs. James Veitch & Sons, Chelsea, sent a few good Orchids, including Lælio-cattleya × exoniensis, a newly raised plant from C. Mossiae ♀ and L. crispa ♂, L.-c. × Panope (Mendelii × cinnabarina), L.-c. × Ascania, and several others.

Messrs. Hugh Low & Co., Bush Hill Park, staged a pretty little group, containing a well-flowered Vanda Hookeriana, a very fine Cattleya Gaskelliana, C. intermedia alba, C. Schilleriana, C. Mossiæ Wageneri and others, Sobralia macrantha Kienastiana, a good Lælia tenebrosa, Cypripedium Lawrenceanum varieties hackbridgense, Hyeanum, and Gratrixianum, C. niveum and others, Dendrobium Bensonæ, Lælio-cattleyas, &c.

Messrs. B. S. Williams & Son, Upper Holloway, sent a small group,

including Odontoglossum cordatum aureum, Vanda tricolor, Lælia tenebrosa, Cattleyas, Cypripediums, &c.

Mr. H. A. Tracy, Twickenham, sent a good Cattleya × Hardyana, and a pretty yellow Lælio-cattleya. C. Mossiæ was given as one parent, and there was clear evidence of the influence of L. xanthina.

MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL.

THE usual Whitsuntide Show of this Society was held at the Old Trafford Gardens, Manchester, from May 30th to June 3rd, when the Orchids shown were much above the average of the last five years, and made a very fine display. The Society is fortunate in having an excellent Show-House, in which the plants are protected from the inclemency of the weather, and by the removal of the tables to the sides of the building, Mr. Weathers largely increased the floor space, and improved the arrangements in other respects.

The first prize for the best miscellaneous collection of Orchids in bloom (Amateurs) was won by E. Ashworth, Esq., Harefield Hall, Wilmslow (gr. Mr. Holbrook), with a very fine group, in which Miltonia vexillaria, Lælia purpurata, Odontoglossums, and Cattleyas of excellent quality were conspicuous. C. Mossiæ Victoria and C. Lueddemanniana nobilior were particularly fine, other interesting things being C. Schilleriana, Dendrobium atroviolaceum, D. Victoria-Regina, Brassavola Digbyana, and Lælio-cattleya × Phœbe. W. Duckworth, Esq., Shawe Hall, Flixton (gr. Mr. Tindall), was second with a good group, in which Cattleya Mossiæ heatonensis, Cypripedium × grande, and some fine Oncidiums were noteworthy.

In the corresponding class for Nurserymen the prize went to Mr. J. Cypher, of Cheltenham, for a superb group, which filled one end of the building. It contained fine Odontoglossums, some good Dendrobium Bensonæ, Oncidium concolor, Miltonia vexillaria, Masdevallia coccinea, Cypripedium × grande atratum, Cattleyas, and the usual showy things of the present season.

For ten specimen Orchids in bloom Mr. Ashworth was again first, his group including excellent plants of Cattleya Skinneri, C. Mossiæ Reineckeana, Lælia purpurata, Odontoglossum luteopurpureum, O. l. Vuylstekeanum, Dendrobium Dearei, Epidendrum prismatocarpum, Miltonia vexillaria Empress Augusta, Cypripedium Rothschildianum, and C. caudatum. Mr. J. Cypher, Cheltenham, was second, his plants of Cattleya Mossiæ Wageneri and Cœlogyne Dayana being particularly noteworthy. Mr. Harker was third.

For the best collection of Odontoglossums Mr. Ashworth again occupied the premier position with a choice group of about 25 plants, in which O. luteopurpureum elegantium, O. Pescatorei, and O. Hallii were particularly

fine. It also included O. crispum in variety, O. cordatum, O. × Andersonianum, &c. Mr. J. Robson was second with a larger but less varied group, chiefly composed of good forms of O. crispum.

The trade exhibits were very fine, Gold Medals being awarded to Messrs. Charlesworth & Co., Bradford; Messrs. John Cowan & Co., Gateacre; and Messrs. Sander & Sons, St. Albans; and a Silver Medal to Messrs. William Bull & Sons, of Chelsea, for fine groups.

Messrs. Charlesworth's group was rich and varied, the hybrids being in great force. First-class Certificates were given to Lælio-cattleya × Fascinator and L.-c. × Major-Gen. Baden-Powell, and Awards of Merit to L.-c. × Dora (L.-c. × Phœbe × C. Schrœderæ) and Phaius × Crawshawianus (Humblotii × Blumei assamicus). L.-c. × G. S. Ball and others were also conspicuous.

Messrs. Cowan & Co.'s group included some good forms of Cattleya Mossiæ and C. Mendelii, C. intermedia alba, Cœlogyne pandurata, Cypripedium callosum Sanderæ, Cymbidiums, &c. First-class Certificates were given to two finely blotched forms of Odontoglossum crispum.

Messrs. Sander & Sons staged a very fine group, and gained First-class Certificates for Brasso-cattleya × Empress of Russia, Lælio-cattleya × Arnoldiana magnifica, Odontoglossum × ardentissimum numosum, and O. × Wilckeanum venerandum, and Awards of Merit for O. × amœnum and O × Adrianæ F. K. Young.

Messrs. William Bull & Sons received Awards of Merit for Cattleya Mossiæ chelseensis and Odontoglossum × Wilckeanum Nestor.

Orchids also played a prominent part in one of the groups of plants arranged for effect in a space of not less than 150 square feet. This was staged by Mr. Upjohn, gardener to the Earl of Ellesmere, Worsley Hall, and gained the second prize.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

AT the meeting held on June 12th there was a good display of Orchids awards being granted as follows:—

W. Duckworth, Esq., Flixton (gr. Mr. Tindall), received a Silver-gilt Medal for a very beautiful group, containing two plants of Cattleya Mendelii Quorn House var. (F.C.), C. Mossiæ flixtonensis (A.M.), C. M. Phyllis (A.M.), C. M. Cahuzacæ, a well-grown plant of Epidendrum atropurpureum Randii, &c.

S. Gratrix, Esq., Whalley Range (gr. Mr. G. Cypher), received a Silver Medal, for a group consisting chiefly of choice Odontoglossums. Awards o Merit were given to O. c. Alport, a good broad blotched form with a rosy ground, and Cattleya Mossiæ West Point var.

O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), received a Bronze Meda

and a Cultural Certificate for a most beautiful group of fourteen plants of Lælia grandiflora (majalis), finely grown and flowered.

E. Ashworth, Esq., Wilmslow (gr. Mr. Holbrook), received an Award of Merit for Cattleya gigas Ashworthiana, a large and richly coloured form.

Messrs. John Cowan & Co., Gateacre, received a Bronze Medal for a small group of showy things, and an Award of Merit for Cypripedium × Tautzianum var. Youngii.

Messrs. A. J. Keeling & Sons, Bradford, also received a Bronze Medal for a small group, including Lælio-cattleya × Martinetii, and a good Odontoglossum × Adrianæ.

Messrs. Charlesworth & Co., Bradford, received an Award of Merit for Odontoglossum Pescatorei Beauty, having well-formed flowers prettily spotted with purple.

AT the meeting held on June 26th there was again a good display of Orchids, and awards were given as follows :—

A Silver Medal was given to W. Duckworth, Esq.; and Bronze Medals to Messrs. James Cypher & Sons and Messrs. John Cowan & Co., for good groups. Votes of Thanks were also given to Messrs. A. J. Keeling & Sons and Mr. D. McLeod for smaller groups.

Awards of Merit were given to T. Mitchell Eccles, Esq., J.P., for Oncidium Saintlegerianum; to H. Shaw, Esq., for Cattleya Mendelii Mrs. Shaw; and to Messrs. James Cypher & Sons, for Cattleya Warneri gemma and Lælio-cattleya × Martinetii var. flavescens.

ORCHID HYBRIDISATION.

(*Continued from page* 123).

IF the capsules survive the period mentioned in our last paper they will probably mature and ripen, and as this stage approaches it is advisable to watch for the first sign of splitting, otherwise some of the seeds may be lost. The capule may now be cut, or tied up securely in a piece of tissue paper for a few days, so as to allow the seeds to mature fully. The next thing is to open the capsule, or tap it gently over a piece of paper and thus secure the seeds. A careful examination should now be made with a lens to see if any of the seed appears good. If it appears plump in the centre, and diminishes considerably towards the pointed ends it may be considered good, but if it appears like hairs or chaff, without any thickening in the middle, it is probably bad, that is to say the embryo has not developed. It the latter case a very careful examination should be made before discarding it as useless, for it frequently happens that a capsule contains a few good seeds among a large amount of chaff, and, although

it is useless to sow empty chaff, it would be a great pity to throw away the few good seeds a capsule may contain for want of sufficient care.

The next process is the sowing of the seed, and in the great majority of cases it is best to sow it at once. But some capsules ripen during the late autumn or winter, and then it has been found advisable to keep the seeds in paper, in a fairly dry place, until the days begin to lengthen, so that when the seeds do begin to germinate they may be able to progress uninterruptedly until they get strong enough to go through the winter safely.

The old custom generally was to sow the seeds on the compost of some growing plant, which required the same treatment and could be left undistubed for some considerable time. In some cases also they were sown on the pots containing young seedling plants, because the conditions were equally favourable to both. Again, pots of new compost were sometimes made up, on which seeds were sown, and then placed in the house to receive the proper treatment. In the case of Cypripedes, Cymbidiums, and some other terrestrial Orchids, this is still the best and most successful method, but for Cattleyas and some other epiphytal Orchids it has been superseded by an improved process. Blocks of soft wood (both pine and willow have been recommended) are cut across the grain with a rough saw into thin blocks, which are placed on a layer of crocks in a smallish pot, and the seeds are sown on the rough surface of the wood. A piece of glass, supported by the rim of the pot, is placed above the block, and the seeds are kept constantly moist by the use of a sprayer as often as necessary. Their progress can thus be watched, for there is no compost for them to sink down into and get lost sight of.

Another method is to pack some living sphagnum moss in a pot and over this stretch a piece of moderately fine canvass, on which the seeds are sown, and kept moist by spraying. Here, too, the progress of the seedlings can be watched from the moment the seeds are sown. When once this is done they must never be allowed to get dry for a moment, as they are quickly injured when once germination has commenced. Care should be taken not to wash the seeds off in spraying, and they should never be dipped overhead, though the base of the pots may be dipped for a few moments without injury. Of course they must be put in a suitable temperature, and shaded from direct sunshine, though a sufficiency of light is requisite, and a position not too far from the glass should be chosen.

The first sign of germination is that the seeds begin to swell and turn green, then they gradually lose the seed-coat, and become more globular, and at length a minute growing point appears, with root hairs, and then the roots proper. But the pricking off stage has now arrived, and this will be dealt with in our next paper.

(To be continued.)

ODONTOGLOSSUM × CRAWSHAYANUM.

A HANDSOME hybrid Odontoglossum, raised in the collection of De Barri Crawshay, Esq., Rosefield, Sevenoaks, from O. Hallii ♀ and O. Harryanum ♂, was exhibited at a meeting of the R. H. S., on July 16th, 1901, under the above name, and received an Award of Merit. Just previously a supposed hybrid from the same two species had been described as O. × Braeckmani (*Lindenia*, xvi, t. 744), and consequently the name of Mr. Crawshay's plant was changed to O. × Braeckmanii var. Crawshayanum (*Orch. Rev.*, ix, p. 232). The record was that it had been obtained in the collection of M. Metdepenningen, of Ghent, that the origin had not been exactly noted, though it was supposed that the parents were O. Hallii and O. Harryanum, and an examination of the flower confirmed the suspicion, for the flowers were intermediate in shape, but most like O. Hallii in colour. It was unfortunate that no authentic flower was forthcoming, especially as Mr. Crawshay doubted the identity of the two plants. M. Metdepenningen has since died, and his collection has been dispersed, without any solution of the difficulty having been arrived at. Mr. Crawshay therefore wrote to Mr. Linden respecting the matter, and has received a reply to the effect that materials were sent by M. de Metdepenningen to M. Linden, with the request that he would publish a figure in *Lindenia*. This was done, but there was some little misconception about the actual history of the plant, and it has since been ascertained that it was not actually raised by M. Metdepenningen, but was purchased by him, and is actually a seedling out of a batch of O. × crispo-Harryanum. If this is the case O. × Crawshayanum will be the correct name for the hybrid between O. Hallii and O. Harryanum, and O. × Braeckmanii will have to be transferred elsewhere as a synonym. It is a very unfortunate confusion, but a glance at the coloured plate will convince anyone that the original remark about the resemblance in colour to O. Hallii was justified. It would be interesting to know what has become of the actual plant. Raisers of seedling Odontoglossums should look out for something identical in their next batch of seedlings between O. crispum and O. Harryanum.

THE HYBRIDIST.

SPATHOGLOTTIS × KEWENSIS.—This is a hybrid raised at Kew between Spathoglottis plicata var. Micholitzii ♀ and S. Vieillardii ♂. The cross was made in 1900, the seeds sown in January, 1901, and the first plant is now in flower. S. plicata var. Micholitzii is readily distinguished from the type by its dwarfer habit and narrower leaves, but the bright purple flowers

are very similar in general character. S. Vicillardii is a larger plant, with broad leaves and tall scapes, the sepals and petals being nearly white, with the front lobe of the lip light purple, and the side lobes much darker in colour. The hybrid is a very free-grower, the largest leaves measuring 1½ feet by nearly one inch broad, and the scape is at present rather shorter than the leaves. The bracts are ovate, reflexed, subacute, ¾ inch long, and tinged with purple. The flowers are over 2½ inches across, and the sepals and petals lilac-purple, rather darker along the centre of the petals. The side lobes of the lip are oblong, obtuse, 4 inches long, and uniformly red-purple in colour, and the obcordate front lobe lighter purple, passing into yellow about the middle of the slender stalk. The crest is of the latter colour, with some brown markings, and somewhat hairy on the sides and apex. It is thus unmistakably intermediate in character, though most like the seed parent in habit. It promises to be a very free-growing and flowering garden plant.

CYNORCHIS × KEWENSIS.—Another interesting hybrid raised at Kew, from Cynorchis Lowiana ♀ and C. purpurata ♂. The two species flowered together in the spring of 1901, and a flower of C. Lowiana was fertilized with pollen from the other species, the result being a good capsule, which matured rather quickly, as the seed was sown early in the autumn. Seedlings soon appeared, and steadily progressed, and about the end of May of the present year two of them flowered, and prove quite intermediate between the two parents. C. Lowiana (*Bot. Mag.* t. 7551) is a slender plant, having rather narrow leaves, few flowers, light green lateral sepals, a purple lip, and a clavate spur: while C. purpurascens (*Bot. Mag.* t. 7852) is a robust thing, with broad leaves, stout scapes, and many-flowered heads, of large purple flowers, with a white blotch on the disc of the lip, and a linear spur. The seedlings have not yet reached their full development, but are already more sturdy than the seed parent, and have lost the light green lateral sepals and the clavate spur, the former being lilac in colour, and the latter slender throughout, and 1½ inches long. The lip is strongly four-lobed, over an inch broad, and lilac-purple in colour, with a white blotch on the disc in one case, and a darker purple blotch in the other. Probably more variation may appear when other seedlings flower. It is likely to be a good garden plant, as both the parents are easily grown and handsome. It will be noticed that the two seedlings mentioned flowered in about two years from the date of crossing.

DISA × ELWESII.—A handsome hybrid Disa has been received from the collection of H. J. Elwes, Esq., Colesborne, Cheltenham. Mr. Elwes writes:—"It was raised here, I believe, between kewensis and Veitchii, but am not sure." A flower of D. × kewensis, raised in the collection, is also sent to show how great an improvement it is, and the plant is still

small, and has only produced a two-flowered raceme. The dorsal sepal is over 1¼ inches broad, and prettily spotted inside with rose-pink on a light blush ground, and light pink outside. The lateral sepals are 1½ inches long by 1⅛ inches broad, and bright rose-pink in colour. The petals and lip closely resemble D. × kewensis in character, but the column is rather more like D. × Veitchii, of which flowers are also sent, together with two inflorescences of the deep rose-coloured D. racemosa.

THE LINDLEY MEDAL.

THE resuscitation of this forgotten trophy at the recent Temple Show, and the comments thereon at page 162, induced us to look up the history of the question, and the following extracts (*Gard. Chron.*, 1865, p. 1205), showing the circumstances under which it was inaugurated, will probably be read with interest:—

"Royal Horticultural, December 19th.—W. Wilson Saunders, Esq., in the chair. . . . The Chairman, adverting to a magnificent group of Lycaste Skinneri and other winter flowering plants shown at this meeting by Mr. Veitch, stated that the Council, in order to indicate the high appreciation in which such displays are held by it, had resolved to have a new medal prepared, to be awarded at the Tuesday meetings only, to exhibitions similar to that furnished on this occasion by Mr. Veitch. This is to be the second in value to the Gold Banksian, and is to be called the Lindley Medal, in honour of one who had done so much for the Society, and whose loss it now had to lament.

"Mr. Veitch's valuable collection of plants above alluded to consisted of no fewer than 53 well-bloomed specimens of Lycaste Skinneri, no two of which were exactly alike, showing in an eminent degree the great liability to variation which exists in this species of Orchid. Associated with them were the Barkeri Skinneri and its darker coloured variety called atropurpurea, the Australian Dendrobium Tattonianum," &c. (the rest not being Orchids).

CATASETUM TRIFIDUM ♀.

IT is interesting to note that the plant of Catasetum trifidum at Glasnevin has again produced three female flowers. Last year it produced an inflorescence of each sex, the female having three, and the male twenty flowers, as recorded at vol. x., p. 199. In 1901, Mr. Moore remarks, male flowers alone were produced. As before, the whole flower is heavily marked with dark purple brown, and it may be added that the males were unusually dark. There is considerable variation in colour, for in some cases the

green predominates, and in the form which Rodriguez called C. umbrosum, both sexes are said to have been wholly green. Unfortunately the question of the identity of C. fuliginosum cannot yet be cleared up (see *O.R.*, x., pp. 327, 328). The latter was described from a plant of unknown origin, which flowered in the Duke of Northumberland's collection at Syon House, in September, 1841. The inflorescence, now preserved in Lindley's Herbarium, bore the unusual number of eight female flowers. They were described as being spotted with dull blackish purple, as if they were soiled with soot. The two plants appear to be very much allied, but in face of the fact that the females of half the species of Catasetum are still unknown, and that the habitat is not on record, it would not be safe to assume that they represent the same species. It is to be hoped that any opportunity of adding to our knowledge of this remarkable genus will not be neglected.

R. A. ROLFE.

ORCHIDS IN SEASON.

MASDEVALLIA COCCINEA and its numerous varieties are among the most brilliant of spring-flowering Orchids, and, when well grown, extremely effective. A group of over a dozen forms is sent from the collection of the Right. Hon. J. Chamberlain, M.P., Highbury, Birmingham, by Mr. Mackay, the flowers being large and representing various shades between deep rose and the most dazzling purple-crimson. They also have the merit of lasting very well as cut flowers. Such a group gives one some idea of what the effect produced by these plants in their native homes must be, and this is very well described by Messrs. Veitch in their Manual (V. p. 360:— "Its principal locality is on the Eastern Cordillera, called the Sierra Nevada de Chita, where it spreads in uninterrupted masses for miles, covering acres upon acres of the upland slopes, growing in the partial shade afforded by the low shrubs that abound in the place. When in bloom, these masses of Masdevallia present one of the most striking floral sights it is possible to behold, even in tropical lands; it is not only the dazzling brilliancy of the colours displayed by the countless thousands of flowers, but also their astonishing variety: there is scarcely a shade of colour from the deep, rich crimson-purple of Bull's Blood, through magenta-crimson, scarlet, orange, yellow, to cream-white that is not represented in greater or less abundance, the lighter shades of yellow being the rarest." It may be added that the white variety (var. Gravesiæ) has been introduced to cultivation, but is extremely rare.

Other beautiful plants from Mr. Chamberlain's collection are, a three-flowered inflorescence of the beautiful albino Cattleya Mossiæ Wageneri.

the pretty little Lælia × Euterpe, Lælio-cattleya Ascania and L.-c. × Hon. Mrs. Astor, also two pretty hybrids of doubtful parentage, for they do not agree with the records under which they were purchased. One is a pretty buff-coloured hybrid of Lælia cinnabarina—possibly G. S. Ball—and the other is a Lælia, of which one parent was probably L. purpurata. We regret to say that hybrids of doubtful parentage are becoming unduly numerous.

A large and handsome form of Cattleya Mossiæ is sent from the collection of F. Wellesley, Esq., Westfield, Woking, by Mr. Gilbert. It came from the late Mr. Smee's collection, with the name of C. M. southgatense. The sepals and petals are rosy lilac, and the front lobe of the lip 2½ inches broad, and heavily reticulated with the richest purple crimson on a blush pink ground, which becomes very pale at the beautifully undulate margin. The yellow area on the disc is rather small but deep in colour.

A three-flowered inflorescence of a fine typical form of Cattleya Mossiæ is sent from the collection of Isaac Carr, Esq., Poolemeade, Bath. The shape is good and the petals 2¾ inches broad.

A series of five beautiful forms of Cattleya Mossiæ is also sent from the collection of E. J. Lovell, Esq., Oakhurst, Oxted, by Mr. Jones, and it affords some idea of the wide range of variation seen in this beautiful species. First we may mention a fine broad petalled rosy-lilac form, in which the orange-yellow disc is very largely developed and rich in colour, while in front of this is an area heavily veined with rich crimson. A second has the orange yellow disc well developed, and the crimson veining on the front of the lip arranged in few radiating somewhat interrupted lines. A third has the crimson mottling only extending about half way from the yellow disc to the apex, leaving a very broad nearly white margin. A fourth has rather lighter sepals and petals, and the yellow area is very small and pale in colour, but the crimson colour almost monopolises the front lobe, becoming somewhat veined near the pale margin. A fifth is somewhat similar, but has a broader lip, with the front lobe almost uniformly mottled all over with rich crimson on a rather paler ground. We have not attempted to find varietal names for them, as a host of varieties have been named, but in most cases without any particular system.

A good early form of C. Gaskelliana is also sent, together with a pretty rosy form of Odontoglossum crispum, and one or two more typical forms.

Several splendid Sobralias are sent from the collection of Captain Holford, Westonbirt, Tetbury, by Mr. Alexander. namely, S. macrantha, the fine white S. m. Kienastiana, S. × Veitchii, and S. × Amesiana. They are superbly grown, in one case the lip measuring 3½ inches across. S. × Amesiana is a remarkable flower, the yellow and lilac being as it were imperfectly mixed, giving the flower an almost bronzy appearance. The

lip is rather darker than the sepals and petals, and the throat of the deepest yellow. They fully rival the best Cattleyas in their brilliancy.

Three fine Odontoglossums are sent from the collection of J. Leemann, Esq., Heaton Mersey, by Mr. Edge. O. crispum Sappho is a large and beautiful white form, bearing numerous small light purple spots along the centre of the sepals and petals, with a few larger ones on the lip. O. c. Rita is one of those numerous forms in which the segments are strongly suffused with purple, and each bears several largish brown blotches. The third is a good form of O. × Adrianæ in which the sepals and petals are heavily blotched with very dark purple, and the lip bears one large blotch in front of the crest, and several smaller ones on the sides.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, during July, on the 7th and 21st, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on July 10th and 17th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 3 p.m.

American Gardening for May 30th contains an illustration of a fine specimen of Cœlogyne Dayana, bearing 486 blooms, which gained the Silver Medal of the Massachusetts Horticultural Society, at Boston, on May 23rd last. It was grown by Mr. P. Murray, gardener to Mr. M. P. Winsor, of Fairhaven.

This journal has just re-appeared, after a lapse of six weeks, owing to the death of Mr. James W. Withers, business manager of the publication, and the winding up of the American Garden Publishing Company. The paper has been acquired by a syndicate, including Mr. Thomas B. Meehan, of Philadelphia, and it is intended to continue it as a weekly journal of American horticulture and improve its status. Mr. Leonard Baron is retained as Editor, and we wish our contemporary increased success.

The May issue of Messrs. Cogniaux and Goossens' interesting little *Dictionnaire Iconographique des Orchidées* contains figures of the following Orchids :—Arachnanthe Cathcartii, Cattleya Mossiæ var. variabilis, C. Percivaliana var. grandiflora, Cypripedium × Chapmanii, C. × Gaudianum, Dendrobium Ainsworthii var. grandiflorum, D. sanguinolentum, Epidendrum atropurpureum var. Lionetianum, Houlletia odoratissima, Maxillaria tenuifolia, Miltonia Phalænopsis, Saccolabium bellinum, and Zygopetalum brachypetalum var. pallidum.

ODONTOGLOSSUM × COOKSONI VAR AMABILE.

A flower of a fine seedling Odontoglossum is sent from the collection of Captain Holford, Westonbirt, Tetbury, by Mr. Alexander. It was obtained from M. Peeters, of Brussels (who, however, was not the raiser), and was exhibited at the Temple Show, though overlooked in our report. There was a little doubt about the parentage, but on comparison we believe it to be a hybrid between O. crispum and O. Hallii. The flower measures $4\frac{1}{4}$ inches across its broadest diameter, and the ground colour is light yellow, blotched with red brown on the petals and more strongly so on the sepals and lip. The segments are broad and acuminate, and the lip, crest, and column also show much of the Hallii influence.

ORCHID PORTRAITS.

CATTLEYA × WHITEI MAGNIFICA.—*Journ. Hort.*, 1903, i, pp. 538, 539, with fig.

CHLORÆA CRISPA.—*Garden*, 1903, i, pp. 410, 411, with fig.

CŒLOGYNE DAYANA.—*Amer. Gard.*, 1903, p. 241, with fig.

CYPRIPEDIUM JAPONICUM.—*Gard. Chron.* 1903, i, pp. 355, 356, fig. 138.

CYPRIPEDIUM PUBESCENS.—*Gard. Chron.*, 1903, i, pp. 378, 379, fig. 146.

DENDROBIUM MADONNÆ, Rolfe.—*Bot. Mag.*, t., 7900.

LÆLIO-CATTLEYA × FASCINATOR SPLENDENS.—*Garden*, 1903, i., pp. 396, 397, with fig.

LYCASTE × BALLIÆ.—*Gard. Mag.*, 1903, p. 356, with fig.

ODONTOGLOSSUM × ARDENTISSIMUM EXQUISITUM.—*Gard. Mag.*, 1903, p. 374, with fig.

ODONTOGLOSSUM × WILCKEANUM VENERANDUM.—*Garden*, 1903, ii, p. 397, with fig.

ODONTOGLOSSUM CRISPUM GRAIRIANUM.—*Journ. Hort.*, 1903, i, p. 507, with fig.; *Gard Chron.*, 1903, i, p. 407, fig. 157.

VAR. PURPURASCENS.—*Gard. Mag.*, 1903, pp. 390, 391, with fig.

VAR. SANDERÆ.—*Gard. Chron.*, 1903, i, p. 416, fig. 161.

VAR. TRUFFAUTIANUM.—*Garden*, 1903, i, p., 443, with fig.

CORRESPONDENCE.

(Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.)

J.B. 1, Lælia × cinnabrosa. 2, Odontoglossum × Denisoniæ Wilckeanum. 3, O. Hunnewellianum, one of the parents of O. × Adriannæ. 4, Eria flava.

G.E.M. A good dark form of Odontoglossum cordatum, a Mexican species, but, of course, quite distinct from O. maculatum.

A.J.L. and others. The arrangements are not quite completed, but particulars will be given shortly.

Photographs received, with thanks. J.S.

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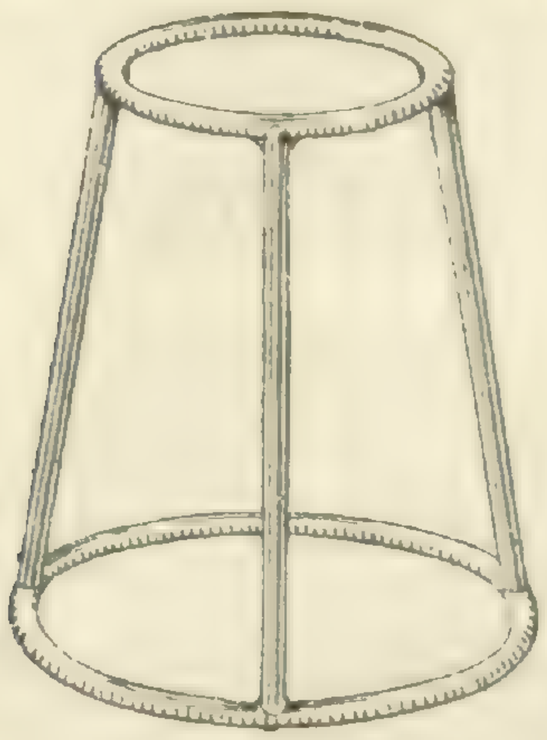

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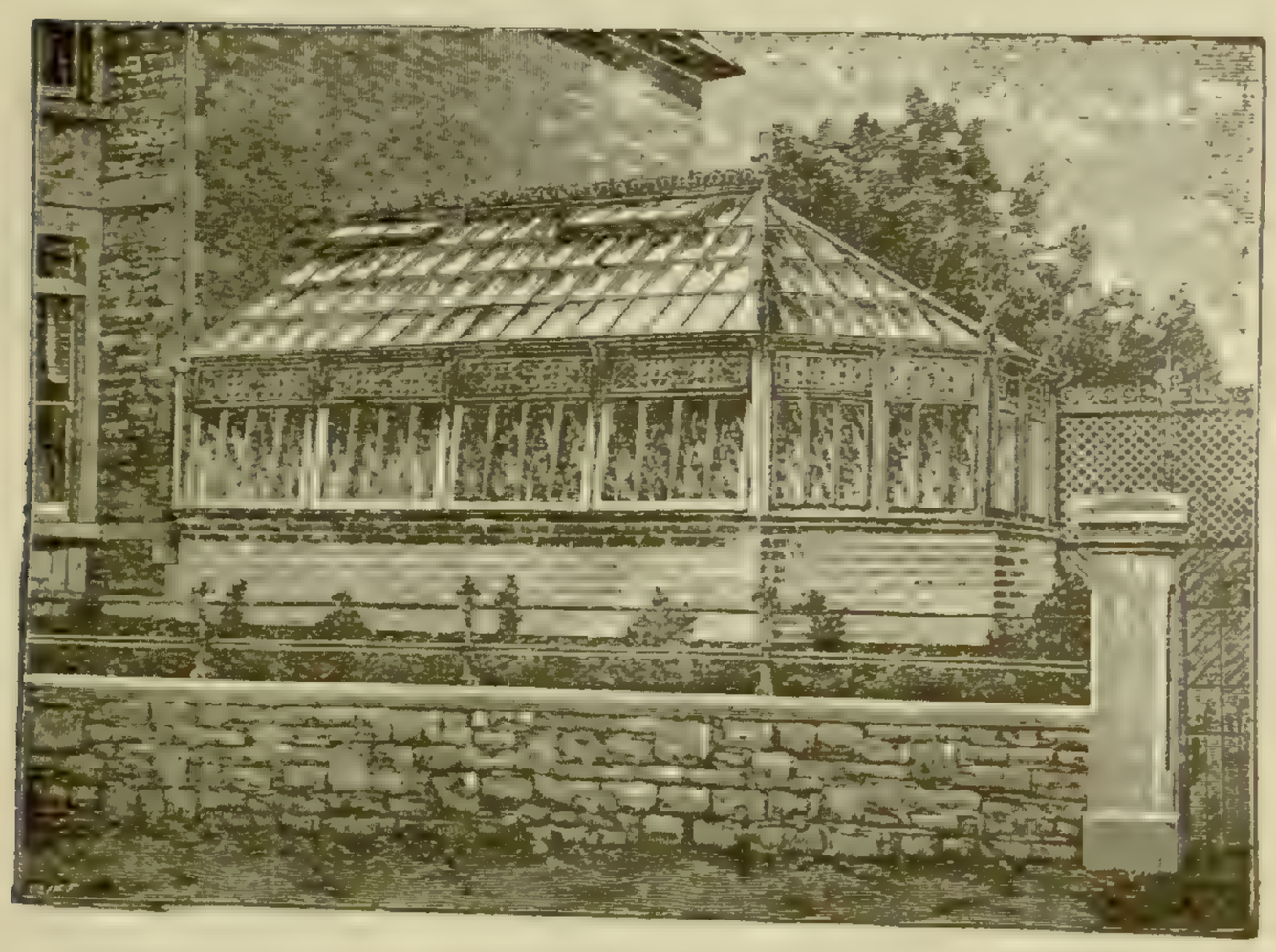

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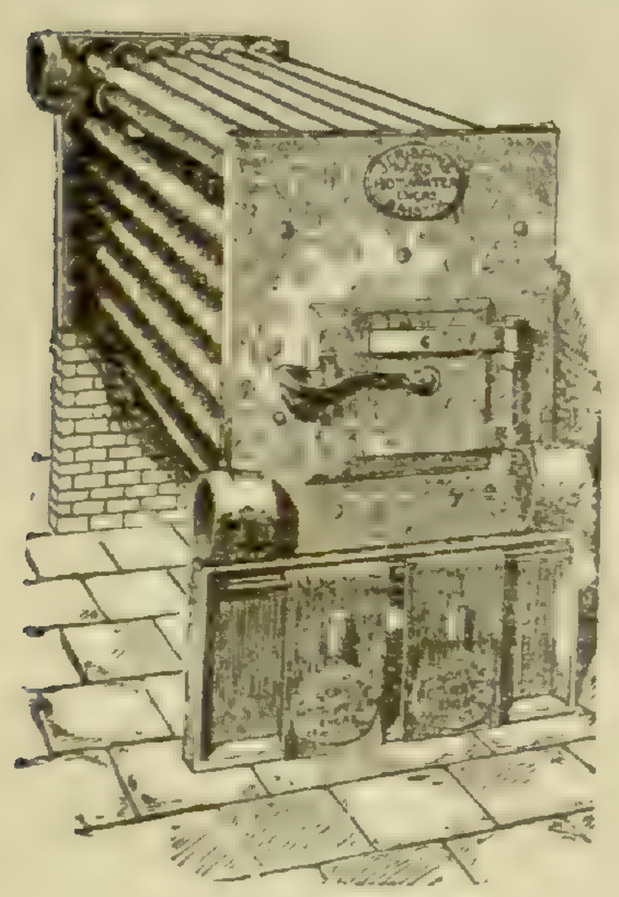

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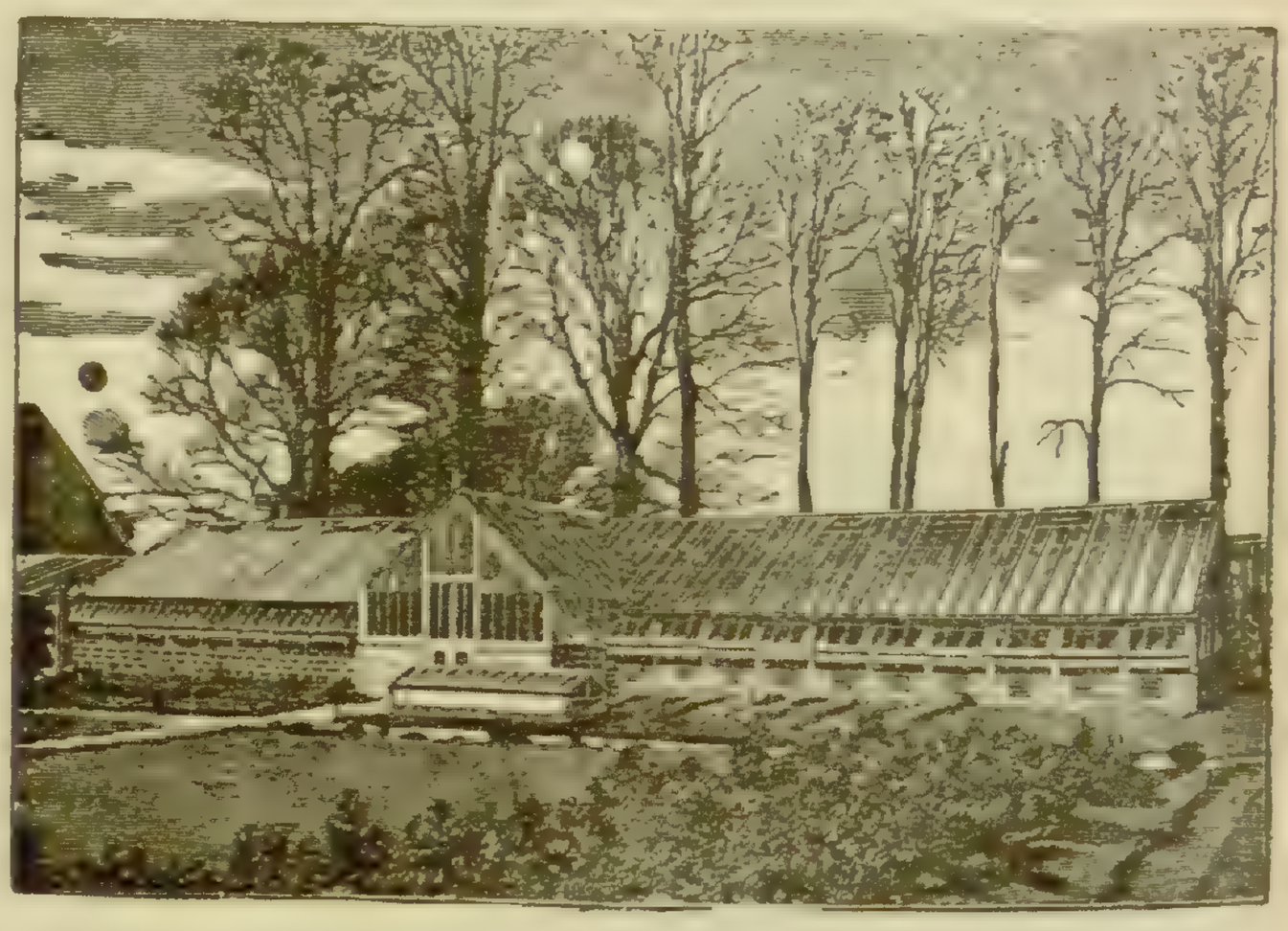

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An Illustrated Monthly Journal of Orchidology.

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VOL. XI.] *AUGUST*, 1903. [No. 128.

DIES ORCHIDIANI.

SPECIMENS of exceptional culture among Orchids are always interesting, and the two figured in your June issue fully merit this title. Odontoglossum crispum is not particularly easy to grow on into a specimen, and such a record as that given at page 169 is surely hard to beat. A plant bearing six racemes and an aggregate of 128 flowers, or an average of over 21 each, is of itself very remarkable, but especially so when we find that little over a year earlier it was a small imported piece with one lead, having in the interval made two sets of growth and five good bulbs. The award of a Cultural Commendation was appropriate, and as Mr. Alexander describes the method of treatment it will enable others to experiment on the same lines. It is significant that a good proportion of rough leaves was used in the compost, but one cannot ascribe such remarkable vigour to this circumstance alone, as it is used for Odontoglossums generally in the collection. It will be interesting to watch the further progress of the plant.

The specimen of Cattleya Schrœderæ figured at page 177 is another example of good culture, and remarkable as showing the unusual number of seven flowers on a spike, but in this case there is no evidence of the kind of treatment adopted. In any case such examples of good culture are worthy of being illustrated, as they afford standards for comparison, and show some of the capabilities of the various species under suitable treatment. Well grown Orchids are always a pleasing sight, even when out of flower, and some whose flowers are individually small are very effective when seen in a mass. It is satisfactory to find that the cultural side of Orchidology is being so well kept to the front.

The group of Hybrid Phaius from the group of Norman C. Cookson, Esq., given at page 136, was also interesting, and shows the utility of the group as decorative plants, as well as the steady progress that is being made in hybridising Orchids. It now appears (page 174) that the matter has been carried a stage further, the secondary hybrid Phaius × Clive having been again crossed with P. simulans, apparently with the idea of obtaining a

hybrid approaching the latter in character but having a better constitution. This makes a third cross with P. simulans, which, according to the Mendelian hypothesis, should afford an opportunity for getting rid of most of the P. Wallichii characters, and the result in any case will be interesting. Something of the same kind might be attempted with Paphiopedilum Fairrieanum if only pollen were obtainable. When shall we see a flower of this remarkable plant again at a Royal Horticultural Society meeting?

The various reports of meetings and exhibitions shows that hybridisation is making steady progress, although nothing very sensational has appeared for some time, and it is becoming increasingly difficult to break new ground. Vanda × Maronæ, however, figured at page 209, is an interesting novelty, and Cynorchis × kewensis brings a new genus into the field. The Brassavola Digbyana hybrids are also increasing in number, and it is not unlikely that other fine novelties will be heard of before long.

The Odontoglossum crispum question discussed at page 197 is decidedly interesting, and it is curious to find that after so many years of culture of this most popular of all Orchids it should be necessary to ask "When is a crispum not a crispum?" But it is equally certain that a satisfactory answer has not yet been given, and the discussion makes it clear why it is so. It is evident that hybridists will have to take matter in hand, for importers are only making the question more difficult to answer.

Another difficult Odontoglossum question has cropped up, for I see that an attempt is being made (p. 218) to decide who first raised a hybrid between O. Harryanum and O. Hallii, and what is its correct name. If such difficulties are encountered with artificial hybrids, whose history ought to be pretty well known, it is no wonder that uncertainty should prevail as to the parentage of natural hybrids, whose origin is entirely a matter of inference, in which a very nice sense of discrimination is often involved. It is satisfactory, however, to find that a spirit of enquiry is abroad, and that attempts are being made to clear up some of these difficult questions.

After a long interval the remarkable genus Chloræa is again in cultivation, three species having flowered at Kew, as recorded at page 133. I hope it will be possible to keep them, for Chilian Orchids are very rare in cultivation, and at a place like Kew one likes to find a collection as representative as possible; besides which these plants are among the handsomest of terrestrial species.

In my last notes I referred to the resuscitation of the ill-fated Lindley Medal, and to some of the correspondence which took place respecting it. It was, therefore, the more interesting to see that the circumstances of its inauguration have been unearthed, as recorded at page 220. And I see that there is a question of precedence attached to it that I was not aware of, for it is stated that it is to be "second in value to the gold Banksian." I wonder what is the value of the Flora Medal, now so frequently awarded to Orchids?

ARGUS.

DIDYMOPLEXIS PALLENS.

SAPROPHYTIC Orchids are notoriously difficult to cultivate, and it is only on very rare occasions that they are seen in collections. The above remarkable species is, however, now flowering at Kew, the plant having recently been sent from the Royal Botanic Gardens, Calcutta. It is figured from living examples in the Orchids of Sikkim (King and Pantling in *Ann. R. Bot. Gard. Calc.*, viii., p. 260, t. 346), where it is showed as a whitish unbranched leafless plant, about five inches high, with a few terminal flowers, strongly suffused with brown, whose lip bears a broad median band, studded with numerous brown warts arranged somewhat in transverse rows. The subterranean tubers are moniliform, the thickened portions being fusiform in shape. The brownish colour of the flowers is probably due to their having been placed in formalin for a short time, as the Kew flowers are quite white. It is described as occurring in the bottoms of tropical valleys, usually under clumps of bamboo, and evidently parasitic on their roots. It is said to be distributed over the whole of Bengal and Assam, from the base of the Sikkim Himalaya to the Bay of Bengal; also in Southern India and Perak. And it may be added that it has recently been found in Formosa and in the Philippine Islands. The most remarkable feature about the plant is that after fertilisation the pedicel grows enormously, from half-an-inch to over six inches long, at the same time increasing in thickness, and bearing at its apex an elliptical capsule about nine lines long. Mr. W. B. Hemsley has called attention to this unique character of the plant (*Journ. Linn. Soc.*, xx. pp. 308-311, t. 28), remarking "theonly use of this extension of the pedicel that I can suggest is that it carries up the ripening fruit above the decaying vegetable matter in which the plant grows." Griffith states that it grew about clumps of bamboos in the villages round Calcutta, whence it was introduced into the Botanic Gardens there. It will be interesting to see if the plant proves amenable to cultivation.

R. A. ROLFE.

ORCHIDS AT BALTINGLASS.

ORCHID collections are not numerous in Ireland, but one that we have recently had the pleasure of inspecting is that of J. H. Grogan, Esq., Slaney Park, Baltinglass, Co. Wicklow. It is a small collection, there being only three small houses devoted to Orchids, with a few additional species suspended in an ordinary stove, and some Cymbidiums in a cooler house; but the plants are in that vigorous and healthy condition that shows how well their requirements are looked after. Mr. Grogan is an enthusiast, and spends a good deal of time among his plants; and his gardener, Mr. W. F. Oliver, who has the various other departments of the garden to look after, is an experienced Orchidist, having been Orchid grower at Selly Hill, Birmingham, before Mr. Winn sold his collection.

The Cypripedium house is a lean-to structure, with a south-east aspect, and the plants are remarkably vigorous and healthy. Thrip seems to be an unknown quantity, and the only insects which are described as pests are woodlice, against which a continual warfare has to be maintained, as they constantly find their way into the houses from outside. Among the Cypripedium insigne forms pointed out were a good plant of Sanderæ, and a small piece of the Harefield Hall variety. C. Charlesworthii does remarkably well here, and it is difficult to realize that it has the character of being a bad grower. C. × orphanum was a sturdy little plant, having erect mottled leaves, and a well developed bud. C. Lawrenceanum was in flower, together with Phragmopedilum × Sedeni candidulum and longifolium. We also noted about four dozen healthy little seedlings, and several capsules of seed, promising crosses being C. × Sir Redvers Buller × Leeanum superbum and C. Charlesworthii × insigne Chantini. Space being limited, Mr. Grogan intends to confine his collection chiefly to the autumn and winter-flowering kinds, some of the best of which are being hybridised together. Among other plants in the house which we noted were, the striking Oncidium Papilio in flower, and some Calanthes and Dendrobiums, among the latter being a seedling taken off some imported plants of D. Wardianum. A capsule of D. formosum × chrysotoxum was also pointed out.

The Cattleya house contains a somewhat miscellaneous collection, in excellent health, including a lot of good Cattleyas, those in flower being good examples of C. Loddigesii and granulosa, with C. Leopoldi in bud. Miltonia vexillaria does very well here, and one fine form was in flower. An Ansellia was pointed out which came from the Matoppo hills, and it will be interesting to see what it is when the flowers appear. Another curious plant pointed out was a Cattleya Warscewiczii which has not been watered for twelve months, the reason being that watering invariably rots the roots.

It seems to be a constitutional peculiarity, as no other plant in the collection is like it, and it was some time before the cause of the mischief was discovered. Phaiuses do remarkably well in leaf-mould, as do most other things, and Mr. Grogan now uses it largely. Singularly enough, it consists chiefly of beech leaves, this tree largely preponderating in the woods where it is collected, and Mr. Grogan's success should disprove a remark that we have heard more than once, that beech leaves were unsuitable.

Hybridising operations were much in evidence, and some young seedlings between Sophronitis grandiflora ♀ and Cattleya Lawrenceana ♂ should develop into a fine hybrid. Seedlings of Lælia purpurata × C. intermedia are getting strong, and should once more prove the parentage of Lælio-cattleya × Schilleriana. Those from C. Warscewiczii × L. tenebrosa were in a younger stage. We also noted good capsules of L. flava × C. Loddigesii, C. Bowringiana × L. Perrinii, L. crispa × C. granulosa, L. × flava × L. Jongheana, C. Schilleriana × C. Warscewiczii, &c., with in some cases the reverse cross, for Mr. Grogan usually makes the reverse cross if possible. Other interesting crosses were Dendrobium Findlayanum crossed with both D. Wardianum and D. Phalænopsis; Lycaste Skinneri crossed with Bifrenaria Harrisonæ and with a yellow hybrid Lycaste, also the reverse crosses; and Zygopetalum Mackayi × Odontoglossum grande, with the reverse cross, one of these being germinating. Seeds of O. Hallii × O. Edwardi had been sown, both here and in the Odontoglossum house, in the hope of finding a suitable position for the germination of the seed.

The Odontoglossum house is a curious structure, evidently built long ago, for quite another purpose. It has a south-east aspect, and has no top ventilation, and only a rough approximation to bottom ventilation. It is also heated in the winter by means of an ordinary flue, which is entirely covered over with a bed of leaves. The glass is whitened in the summer, and it is said that in this somewhat moist climate the house never gets too hot. The floor is composed of cinders. It is not at all an orthodox structure for Odontoglossums, but the plants are growing well, and the atmosphere in the house felt just what Odontoglossums like. All are grown in leaf-mould from the adjacent wood, with an admixture of moss and coarse sand, some having bracken rhizomes for drainage, and others beech husks, the usual crocks being quite discarded. These beech husks are somewhat of a novelty, but, being abundant there, they were tried as an experiment, and proved thoroughly successful, both here and in the Cattleya house, but they seem unsuitable for Cypripediums. Sophronitis grandiflora and Lælia Jongheana were both doing well suspended from the roof. Oncidium macranthum and Odontoglossum Edwardii were making excellent growths, and O. Uroskinneri was in bud. Several plants

of O. crispum were in flower, one having the sepals and lip prettily spotted with light purple. Capsules of O. cirrhosum × Hallii, and the reverse, were pointed out, also O. Pescatorei × facetum, and O. facetum × crispum, together with O. crispum × Miltonia vexillaria, which should prove interesting if seedlings result.

In a stove, or warm fernery, we noted a plant of Peristeria elata, which has recently flowered, Angræcums sesquipedale, eburneum, and superbum, Oncidium flexuosum, Aërides odoratum, suavissimum, and Houlletianum, Rhynchostylis retusa, in bud, Cœlogyne Massangeana in flower, C. cristata, Stanhopea tigrina, and good examples of Vanda cœrulea and Lælia purpurata, all the plants being strong and healthy.

About three dozen Dendrobium Wardianum were doing well in a vinery, some of the bulbs being three feet long, and in a cooler house were examples of Cymbidium Lowianum, Tracyanum and eburneum.

Mr. Grogan has a most interesting little collection, and from his success as a grower and the experiments in progress we should not be surprised to see a considerable development during the next few years.

MAXILLARIA GRACILIS.

THIS pretty little Brazilian species has again appeared in cultivation, a plant having recently flowered in the Royal Botanic Gardens, Glasnevin, which agrees with the original described and figured by Loddiges in 1832 (*Bot. Cab.*, t. 1837). The author briefly remarked:—"This curious little plant is a native of Brazil: it is very slender in its habit, and does not exceed the height of four inches. With us it flowered in the month of August, in the stove, which is constantly necessary for its preservation. It may sometimes be separated for increase, and should be potted in moss, vegetable earth, and small pieces of broken pots." In 1877 it was again described by Rodrigues, under the name of M. Queirogana (*Gen. et Sp. Orch. nov.*, i., p. 116), from materials found on the Organ Mountains, flowering in December. The plant grows in a neat little tuft, having ovoid-oblong diphyllous pseudobulbs less than an inch long, narrowly linear-oblong leaves four to five inches long, and slender scapes, shorter than the leaves. The flowers are light yellow, with the midrib and margins of the sepals reddish, a few purple spots on the lip, and some reddish stripes on the face of the column. It may be described as a miniature species of the M. picta group. Several of the larger species of this group are occasionally met with in cultivation, for example M. picta, M. porphyrostele, M. acutipetala, M. punctata and M. marginata, all of which require Intermediate house treatment, and are of the easiest possible culture.

R.A.R.

RARE ORCHIDS AT KEW.

A SUCCESSION of interesting rarities may be found in flower in the Kew collection throughout the year, in addition to the commoner species, and at the present time the number is considerable. The remarkable Cymbidium rhodochilum has again produced a fine spike, but is just over, and the showiest Orchid at the present time is Renanthera Storiei, which carries a panicle of three branches, and an aggregate of thirty-three of its deep crimson flowers. The species is figured in *Bot. Mag.*, t. 7537. Angræcum Eichlerianum is a noble specimen, carrying twenty-nine flowers, and producing a very fine effect. Listrostachys forcipata is a remarkable species, having equitant leaves, and racemes of pellucid white flowers, over half an inch long, with the spur forked at the apex. The plant bears ten racemes, and is very effective. Other species in bloom are L. Chailluana and L. ashantensis, the latter bearing six racemes of buff-coloured flowers. Didymoplexis pallens is a remarkable little saprophyte, bearing white flowers, which one would not expect to find in cultivation. Ancistrochilus Thomsonianus (better known as Pachystoma) is also flowering well.

The Bulbophyllum group is well represented, and includes the remarkable B. grandiflorum, B. barbigerum, and B. Dearei, and Megaclinium is represented by M. triste, M. minutum, M. angustum, and the remarkable M. platyrhachis. Polystachya Kirkii is an interesting little African species, the others in flower being P. rhodoptera, P. leonensis, P. laxiflora, and P. luteola. Nearly a score Masdevallias are in bloom, the more interesting being two clumps of the remarkable M. muscosa crowded with flowers, a well-bloomed M. floribunda, M. nidifica; of the Chimæra group, M. bella, Carderi, Chestertoni, and Vespertilio; the rare M. demissa, M. Reichenbachiana, and M. gemmata. Restrepia antennifera and R. maculata are flowering side by side, the former having striped flowers, and it is curious that two such distinct plants should ever have been confused. Other allied plants are Scaphosepalum punctatum, S. ochthodes, and several species of Pleurothallis.

Lælia monophylla is a pretty little plant with seven flowers, while L. xanthina is bearing eight racemes. The rare natural hybrids Lælio-cattleya × delicata and Cattleya × sororia are also flowering, together with a good plant of C. Grossii. Miltonia × castanea and M. × Cogniauxiæ var. bicolor are represented by good plants bearing several racemes. There are also two plants of the rare Odontoglossum auriculatum (Rolfe), which comes home with O. nævium, and O. purum. Other interesting little plants are Habenaria rhodochila, Cynorchis grandiflora, Eulophia euglossa, E. Ledienii, and Hæmaria Dawsoniana, the two latter having also very handsome foliage.

Calanthe is represented by C. × Dominii, the first hybrid Orchid, now bearing five racemes, and C. japonica, a rare species with showy deep purple flowers; Oncidium by a good O. longipes, O. trulliferum, O. exasperatum, and O. Cebolleta; and Epidendrum by E. nocturnum, E. floribundum, E. fragrans, and the Floridan E. tampense. Ornithidium bicolor (Rolfe) is a remarkable Orchid having bright yellow flowers with a crimson blotch on the lip. Its peculiar dimorphic growths have already been pointed out (*O. R.*, ix., p. 195). Microstylis Thomassetii (Rolfe) is a native of the Seychelle Islands, somewhat resembling the Indian M. Wallichii in general character. The Javan M. commelynifolia is also flowering profusely. Habenaria triquetra (Rolfe) is a native of the Shan States, allied to H. pectinata, but differing in having a strongly triquetrous overy.

A few other plants which may be mentioned in conclusion are, Oberonia ensiformis, Geodorum candidum, Gongora galeata, Dendrobium macrostachyum, Jerdonianum and trinervium, Spathoglottis Fortunei and × kewensis, the latter very effective, Satyrium longicauda, Macradenia lutescens, the graceful Platyclinis filiformis, Promenæa stapelioides, Sarcochilus Roxburghii, Luisia brachystachys, Brassia caudata, two specimens of Eria velutina crowded with flowers, Aërides suavissimum, Maxillaria picta, rubescens, and crocea, Gomesa planifolia, &c. No mention is made of the common showy species, of which numerous examples are in flower. A good many of the foregoing are often classed as Botanical Orchids, but for some the term is a complete misnomer, and the houses are certainly now very attractive.

MAXILLARIA FUNEREA.

AN interesting miniature species of the Caulescent group, which was described by Lindley, in 1842 (*Hook. Lond. Journ. of Bot.*, i, p. 188), from dried specimens, collected on dry rocks at Praya Vermelha, Brazil. It has now appeared in cultivation, having flowered with Mr. F. W. Moore, at the Royal Botanic Gardens, Glasnevin. According to a drawing made by Rodrigues, it also grows on the branches of trees. The stems are stoutish, and somewhat elongated, the pseudobulbs oblong, channelled, about half an inch long, and monophyllous, and the leaves oblong, and 1 to 1¼ inches long. The flowers are four lines long, with broad purple-brown sepals and petals, and a darker shining lip, with a broad crest. The stem and base of the pseudobulbs are covered with ovate striate sheaths, from which the shortly pedicelled flowers are slightly exserted. It is a very curious little plant, and a member of a small group that is very rarely seen in cultivation.

R.A.R.

LÆLIO-CATTLEYA × WIGANIÆ.

THE annexed figure represents a very beautiful hybrid from the collection of Captain C. C. Hurst, Burbage, Hinckley. It is a seedling from the Winn collection, and was purchased with the record of parentage, "Cattleya Mossiæ × gigas," which is evidently a mistake. In a letter accompanying the photograph, Captain Hurst remarks:—"I believe it to be Lælio-cattleya × Wiganiæ (C. Mossiæ × L.-c. × Gottoiana), but, curiously enough, the flowers only bore four pollen masses, as in pure Cattleya. Of

FIG. 39. LÆLIO-CATTLEYA × WIGANIÆ.

eight plants flowered by me of this cross three had four pollen masses, as in Cattleya, and five had eight pollen-masses, as in Lælio-cattleya. The photograph represents the best of the eight forms." It is a very beautiful plant, and has all the appearance of being the secondary hybrid above mentioned, though one cannot be absolutely certain from the photograph alone. The inflorescence bore three flowers, of excellent shape. It would be interesting to observe the character of the pollinia in a series of secondary hybrids of

Lælio-cattleya, to see whether they confirm the observations now made, but care would have to be taken in classifying them under the two heads, because the four smaller pollinia vary considerably in size in different individuals. Lælio-cattleya × Wiganiæ originally flowered in the collection of Sir Frederick Wigan, Bart., Clare Lawn, East Sheen, in 1900, and received a First-class Certificate from the R. H. S. (*O. R.*, viii, pp. 214, 249). The typical form has light rose-purple sepals and petals, and the lip bears darker purple radiating veins. In the variety aurea the sepals and petals are light buff, and the lip cream-white veined with purple. It is a very beautiful plant, and, being a secondary hybrid, a considerable amount of variation may be expected as other seedlings reach the flowering stage.

CALENDAR OF OPERATIONS FOR AUGUST.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

DURING this month the general growing conditions of the various departments should remain as previously advised. Endeavour to maintain such conditions as are favourable for the free and vigorous growth of the plants, and success will be sure to follow. The daily routine of the Orchid grower's life will be on a parallel with that of last month, watering, damping, shading, cleaning, &c., and these items will fully occupy his time, with very little else to break this somewhat monotonous procedure. However, to the one who loves his work, life will be full of interest, for during the daily rounds of examining his plants the progress of each is noted, and, in a great many cases, the advancement made from day to day is so evident that one has material facts to support its continuance. Take the Cattleya house, for instance. Those species that bloom in the autumn and winter, or early spring, are now developing their growths, and each day the expectant observer may find the ever welcome sheaths appearing, which to him is an almost sure indication that the plant will in due course produce flowers. The ardent Orchidist only knows what a thrill of pleasure is occasioned by the appearance of a sheath, or other indications of floral production, in a plant from which great things are expected. The production of sheaths, however, is not the only pleasure obtainable, for there is the condition of the plants, and the progress made since they were potted or top-dressed to note; and the practical lessons to be learned from observations made on the above should be carefully stored up for future use.

The climatic conditions that usually prevail this month and next are more in accord with those existing in the home of the Cool Andine Orchids; the hot days and dewy nights being very congenial to the occupants of the Cattleya and Mexican houses, and the cool dewy nights to

the inhabitants of the Cool houses. To give plants every chance of deriving benefit from the cool and dewy night air, the ventilators should be left open on the latter houses, and those of the other houses—with the exception of the Phalænopsis house—should be opened sufficiently to admit of a good volume of air at night whenever the outside conditions are favourable for such a procedure. Also, to strengthen and solidify the new growth, in bulbs and leaves, the shading may be removed earlier in the afternoon as the season declines, the plants at this end of the season being much better able to withstand strong light and more air than they were at the beginning. Some few species have now completed their season's growth, and many more are fast approaching that stage. When growth is finished at this early period, it is generally advisable, if possible, to remove such plants from the house in which a large number are still growing actively. If a department exists in which these early species can be accommodated, where they may gradually receive more light, air, and less moisture, so much the better. If not, they may be grouped together in the same compartment, giving them a position by the door, or some other suitable place, so that they may have their special requirements more easily and surely attended to. Do not withhold water too suddenly at the root, but allow them to lapse into a dormant state gradually. These remarks will apply to a few Cattleyas which will either have finished their growth by now or will do so some time during this month. The two principal ones are C. Gaskelliana and C. Warscewiczii (gigas), which will not only have completed their new growths, but have flowered also, and desire nothing more than to be kept quiet. The same will also apply to C. Rex and C. Warneri.

A few Dendrobiums will also now have their pseudo-bulbs completed, and will soon demand cooler and more airy conditions. Dendrobiums are more impatient in this respect than Cattleyas, as are also Thunias, Pleiones, Cœlogynes, and other East Indian mountain species. Dendrobiums and Cattleyas are apt to break a second time the same year, that is to say they start a new growth immediately from the base of the newly formed pseudo-bulb. However careful one may be, a certain percentage of his plants are almost sure to do this. Such new growths should be allowed to remain, but simply be unheeded, giving the plants the more airy treatment, as before advised, exactly the same as if no secondary growth existed. It is a great mistake to still keep the plants in an active temperature in order to bring these second growths to maturity, for it is unlike their natural condition abroad.

Calanthes are now growing vigorously, and require an abundant supply of moisture at the root, but it must be given with discretion, or spot and disease will be the result. Where the pots have become full of roots, alternate

waterings with liquid cow-manure will be conducive to the formation of stout bulbs and strong flower spikes. Previous to using the manure, strain it through a sack, so as to remove all particles of solid matter, which, if not separated from the liquid, would, after a few applications, stop up the pores of the compost. Do not apply it too strong at first; about one gallon to three of water will be sufficient for the first few waterings, and afterwards increase it to one and a half of each. As the young roots appear on the surface, place a thin layer of good fibrous loam lightly over them, into which they will readily push their way, and grow fast, sending up good strong spikes in due season.

Now that plants of Miltonia vexillaria have commenced to grow, they may be re-potted, but before commencing this operation the grower should make quite sure that they are perfectly free from insects, by well washing the growths in soft insecticide, and afterwards cleansing them in clear soft water. The pots may be drained with bracken root, using a compost of two parts leaf mould to one each of fibrous peat and chopped sphagnum, and afterwards surface over with cleanly chopped sphagnum moss. After re-potting, water the plants very sparingly, using a fine rose watering can for the purpose, and giving just enough to entice the sphagnum to grow. As the roots lengthen and lay hold of the sides of the pot, a more liberal supply may be given. The temperature of the Cool house, where they get plenty of fresh air, will be the most suitable place for them, until the nights commence to get chilly, when they should be removed to their former growing quarters in the intermediate house.

Lycaste Skinneri is now in full growth. If grown in the Cool house it should not be left there too late in the autumn, but removed to the Intermediate house. Root disturbance is most harmful to the success of this species, and need only take place at long intervals, if potted well and watered carefully. The present month is a good one for doing up any of the various species of the Cool house which have not yet been done. Odontoglossum Rossii and O. Cervantesii are two pretty species which pay to grow well, so that they bloom profusely; otherwise, with individual flowers here and there only, they are too little to make a show. Both species dislike much disturbance at the root; and, on this account, they should not be re-potted annually. When, however, repotting is necessary, it should not be done later than the present month, and the greatest possible care should be taken not to disturb or break the roots more than is necessary. If the stages are near the roof glass, they grow well there in small pots, otherwise they should be suspended in pans. What little compost is required about their roots should be mostly all fibrous peat, which does not decay so quickly as moss. They delight in a cool, airy atmosphere, and require but little water at the roots at any time of the year.

ORCHIDS AT GLASNEVIN.

The Royal Botanic Gardens, Glasnevin, have long been known as the home of rare Orchids, and cut examples of interesting species frequently make their appearance at the meetings of the R.H.S., of which the remarkable Moorea irrorata and Eulophiella Peetersiana may be mentioned as examples. But these convey a very faint idea of the extreme richness of the collection, more especially in what are often called botanical rarities, a fact which a detailed examination alone enables one to realise. It is doubtful whether there is another collection in existence that is quite its equal in this respect. There are several causes for this. Mr. F. W. Moore, the Curator, is a great enthusiast, and for many years has been collecting these plants—indeed, it may be said that nothing in the shape of an Orchid comes amiss to him. And he is particularly successful in their cultivation, being well equipped in the matter of houses and pits for their reception, in which suitable climates for the majority can be found. It is probable that the somewhat moister climate and comparative absence of urban fog are also beneficial factors. But whatever the cause, the collection is in a very satisfactory condition, and many of the plants have been there ever since their original introduction.

Having obtained an Orchid, Mr. Moore's next aim is to grow it, and in some cases a good deal of shifting about has to be done before a suitable position is found. Even then some are very intractable, and a few were pointed out that are only kept with difficulty, and can scarcely be increased after years of culture. And there are the inevitable fatalities, but these are less numerous than might be expected, for Mr. Moore sets out with the idea that an Orchid that can be got home alive can also be grown, if one only goes the right way to work, and such a belief is an important aid to success. Just how rich the collection is it would be impossible to say, for no list has been published up to the present time, but it is remarkably complete so far as the commonly cultivated species are concerned, besides containing many that are only found in a few other collections, and some that we have not seen elsewhere. Artificial hybrids, however, are only sparingly represented, these chiefly consisting of a few of the older kinds. Some details must now be given, but it is difficult to give an idea of such a collection without compiling a catalogue.

The genus Masdevallia is one of Mr. Moore's special favourites, and there is scarcely a species that is obtainable that is not represented. It contains the almost unique M. velifera, the rare M. minuta, M. striatella, M. Ortgiesiana, M. O'Brieniana, M. auropurpurea, and M. peruviana (Rolfe), an interesting little plant, allied to M. auropurpurea, but differing in having the lateral sepals closely and minutely dotted with dusky purple on a paler

ground, and in various structural details. The species in flower were very numerous, and included eighteen forms of M. Chimæra, differing in size, colour, and other details of the flower. Other species of the Saccolabiatæ were M. bella, M. Vespertilio, the rare and striking M. trinema, M. radiosa, M. Gaskelliana, M. Carderi, and M. Chestertoni. M. coccinea was represented by several distinct forms, allied species in flower being M. ignea and M. racemosa. Of M. muscosa there were two well-flowered examples, while close by was a good plant of the larger and much darker M. xipheres, whose lip, it is interesting to find, opens and closes in precisely the same way as that of M. muscosa. The lips were found wide open, but in each case a slight touch on the tubercle-like crest caused them to close rapidly, the motion being somewhat gentle at first, but suddenly terminating in a quick jerk. A detailed account of this remarkable mechanism and its use, and of the other two species of the section Echidnæ, was given at pp. 228-230 of our last volume. Of the Triaristella group we noted M. gemmata, M. triaristella, and M. triglochin, and of the Caudatæ, M. hieroglyphica, M. Estradæ, and M. caudata var. xanthocorys. Other interesting forms were M. corniculata and its variety inflata, in good examples, M. Reichenbachiana, M. melanoxantha, M. ventricularia, M. demissa, M. cupularis, M. calura, M. maculata, M. marginella, M. infracta, M. nidifica, M. torta, and M. × Rushtoni.

Restrepias are also well represented, the rare R. trichoglossa and four other species being in flower, together with Physosiphon Loddigesii, Scaphosepalum verrucosum, Octomeria diaphana, two species of Cryptophoranthus, Stelis Miersii, with four others, and ten species of Pleurothallis. The more interesting among the latter were P. leucopyramis, a neat little plant bearing eight racemes of pure white flowers; P. Simmleriana, an allied species with dark red-purple flowers, P. inflata, remarkable for the deeply concave united lateral sepals, P. stenopetala crowded with flowers, P. macroblepharis, and a good example of P. scapha.

Several species of Dendrobium were in flower, including an exceptionally fine form of D. atroviolaceum, D. bicameratum, D. Bensonæ, D. Dearei, D. bigibbum, D. × chrysotoxum, D. infundibulum, D. × rhodostoma, D. Jerdonianum, D. thyrsiflorum, D. secundum, D. Devonianum. The Philippine Bulbophyllum saurocephalum was represented by three fine examples, each bearing numerous racemes, other species in flower being B. leopardinum, the Mauritian B. variegatum, B. Lobbii, and B. barbigerum. The remarkable Megaclinium triste was also in flower, and a plant of Trias picta was pointed out as being remarkable for its leaves having a sheen of peacock blue when seen in the shade.

Numerous rare Epidendrums were pointed out, among those in flower being the rare E. Matthewsii of the Nanodes group, E. virens, E. chloroleu-

cum, E. Parkinsonianum, E. Brassavolæ, E. atropurpureum, E. Wallisii, and the rare E. Imschootianum. The charming little Lælia monophylla was showing nine spikes of bloom, other species of this affinity being L. tenebrosa, Cattleyas Warscewiczii, Mossiæ, and Schilleriana, Brassavola Digbyana, and the rare little Hexadesmia crurigera.

Oncidium was represented by the rare O. volvox, O. Wentworthianum, O. pumilum, O. Papilio, O. flexuosum, O pulvinatum, O. longipes, O. candidum and O. Batemanianum, quite a various assemblage; and Odontoglossum by O. Reichenheimii, O. constrictum, O. Pescatorei, and a good O. Wallisii; other members of the tribe Oncidieæ being the rare Neodryas Sacciana, the handsome Comparettia macroplectron, Miltonia spectabilis, a good M. vexillaria, and Theodorea gomezoides, a rare Brazilian plant.

Of the Lycaste group we noted the rare L. tetragona, L. macrophylla, Bifrenaria aureo-fulva, Promenæa xanthina, Anguloa uniflora, and the very rare Chondrorhyncha Lendyana; and among Maxillarias the rare M. nervosa, and a fine specimen of M. luteo-alba. Polystachya Lawrenceana, Kirkii and Bennettiana are three rare African species seen in flower, together with P. cerea and P. luteola, from America. Stanhopea was represented by S. Amesiana, S. bucephalus, and S. Madouxiana; Cœlogyne by C. Massangeana, C. uniflora, C. speciosa and C. flavida; and Phaius by P. pauciflora and P. bicolor.

Other varieties were Goodyera Schlechtendaliana, with variegated leaves, Sarcanthus Williamsoni, Angræcum tridactylites, Disa × kewensis and D. × langleyensis, the graceful Platyclinis filiformis, Luisia teretifolia, the handsome Eulophia guineensis, Eria convallarioides, Sobralia macrantha and S. xantholenca, Cleisostoma secundum (Rolfe), bearing a somewhat one-sided raceme of purple flowers, Liparis paradoxa and L. odorata, and Thunia alba.

Lastly we may mention good examples of Paphiopedilum Chamberlainianum, barbatum, superbiens, Curtisii, Hookeræ, Lawrenceanum, Dayanum, Parishii, Haynaldianum, × selligerum, niveum, bellatulum and concolor; also Phragmopedilum caricinum, longifolium, and × Lemoinierianum, which latter looks like a form of P. × Ainsworthii.

It was interesting to see a fine plant of Eulophiella Peetersiana carrying a capsule of seed, the result of crossing with the pollen of E. Elizabethæ obtained from Kew. This plant has a somewhat rambling habit, but Mr. Moore is able to keep it within bounds by training the stems round above the rim of the pot. Cymbidium rhodochilum was also a healthy little plant. A large number of other interesting rarities were also pointed out, including the remarkable pendulous Lycaste Dyeriana, Liparis fulgens, Zygopetalum Burkei, Xylobium Colleyi, Vanda Roeblingiana, Phragmopedilum Sargentianum; the remarkable glaucous Pleurothallis

punctulata, Oncidium loxense, Odontoglossum cruentum, and a host of others, far too numerous to mention. It may be added that earlier in the season the number of species in flower was considerably greater.

Outside we saw some fine clumps of Orchis foliosa and O. latifolia, the latter a noble form about three feet high, with wholly green leaves and enormous spikes of flowers. This plant received an Award of Merit from the R. H. S. in June, 1895, under the name of O. latifolia Glasnevin variety. In a swampy place near the river we also saw a clump of the very interesting Epipactis palustris bearing fourteen racemes of flowers.

It was a great pleasure to go through this fine collection, and to see such a large number of rarities, and in such thriving condition. It has been remarked that Orchids soon find out when they are in good hands, and the Glasnevin collection affords confirmation of this. It is full of interest from end to end, and thoroughly representative, both of the showy and botanical species, and Mr. Moore must be congratulated on its condition.

CALADENIA GEMMATA.

TRUE blue is an extremely rare colour among Orchids, but a few striking examples are found among Australian terrestrial species of the tribe Diurideæ, and one of them has just flowered in the collection of J. Wilson Potter, Esq., of Croydon. It is Caladenia gemmata, a native of Western Australia, which was described by Lindley in 1839 (*Veg. Swan River*, p. 52). The flowers are of a deep brilliant blue, recalling the colour of Sollya Drummondii, and measure 1½ inches across; the sepals and petals being lanceolate-oblong in shape, and widely spreading, while the lip is broadly ovate, entire, reflexed, about a fourth as long as the other segments, and studded with about nine rows of white tubercles. It is figured in Fitzgerald's *Australian Orchids*, vol. ii., pt. 4, the author remarking that it is "generally distributed in Western Australia, to which colony it is confined." It is a most beautiful little plant, only a few inches high, and bearing a single ovate leaf just above the surface of the soil. The culture of these Australian Orchids is not well understood here, but the treatment recommended is that of the Cool house, the compost consisting of a mixture of peat, loam and rough sand in equal proportions. The allied C. carnea, however, is said to succeed well in the Cattleya house. Natives of a naturally dry climate, they require good drainage and careful watering, with just sufficient moisture when dormant to keep the bulbs plump. Members of the allied genera Thelymitra and Pterostylis are occasionally seen in cultivation, chiefly in Botanic Gardens, and it would be interesting if other species of the remarkable Australian tribe Diurideæ could be introduced. Many are figured in Fitzgerald's Australian Orchids. R. A. R.

DENDROBIUM BENSONÆ.

DENDROBIUM BENSONÆ is an extremely beautiful species that has the reputation of being difficult to cultivate for long together. Recently imported plants, however, flower with the greatest profusion, and such a one is now illustrated, from the collection of R. I. Measures, Esq., Cambridge Lodge, Camberwell, the photograph having been kindly sent by Mr. Smith, Mr. Measures' able gardener. It is a handsome specimen, being literally wreathed in flowers, and the bulbs appear to be attached to a shallow raft, with a very small amount of fibrous compost. The species was discovered by Colonel Benson, in British Burma, and sent to Messrs. James Veitch & Sons, in 1866. The locality is given by the discoverer as

FIG. 40. DENDROBIUM BENSONÆ.

mountains near Tongou, west of Prome, in the Arracan hills, at an altitude of about 1500 feet, and it extends southwards as far as the latitude of Moulmein. The late Major-Gen. Berkeley states that the form found in the Kareen hills, not far from Shoaghyn, is immensely superior to the form found by Benson, the bulbs being stout and plump as compared with the form from the Arracan hills (*Orch. Rev.*, iii, p. 68), and it is this stouter form that is here figured. It is probable that the difficulty of cultivating the plant arises from improper treatment, for Mr. James Cypher remarks:—"I have grown it for eight years, and at the end of that period had finer bulbs than those imported. I believe that many, or nearly all, are lost by

having too much water during winter or early spring, and even when the new growths are several inches long they should receive very little water. Red spider also has a particular fancy for it, and soon injures the young growths, if not kept in check, which should be done by sponging the under side of the leaves with weak Fir-tree oil and water" (*O. R.*, iii., p. 55). It is a most beautiful plant, and one of the most effective in the genus when seen in good condition.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of this Society was held at the Drill Hall, Buckingham Gate, Westminster, on July 7th. The exhibits of Orchids always show a marked falling-off in the summer months, and this occasion was no exception to the general rule, there being only five exhibitors. Three Medals, however, were awarded for groups.

Sir Frederick Wigan, Clare Lawn, East Sheen (gr. Mr. Young), was awarded a Silver Banksian Medal for a fine collection of cut flowers of Sobralias, including S. xantholeuca, S. × Veitchii aurea, the rose purple S. macrantha, and the fine S. × Wiganiæ, which has the white sepals and petals irregularly shaded and marbled with light yellow and lavender, and the lip light rose veined with white, and chrome yellow in the throat. There were also two forms of Cypripedium Godefroyæ leucochilum, the ground colour of one being white and the other pale yellow.

R. Young, Esq., Sefton Park, Liverpool, showed a flower of his new Cypripedium × Ultor (Lawrenceanum ♀ Sanderianum ♂), together with a photograph, showing the three-flowered inflorescence. It is a fine thing having the dorsal sepal ovate, acuminate, and whitish green with purple-brown central band and rows of similar dots on either side, and drooping petals, nine inches long, whitish green and undulate in the arching basal part, and tinted with rose-purple beyond, the middle part being also spotted with purple-brown.

The Hon. W. Rothschild, Tring Park, Tring (gr. Mr. Hill), showed the handsome Lælio-cattleya × Mauve Queen Tring Park variety (C. Warneri × L. crispa superba), a fine form having white sepals and petals delicately tinted with rose, and the front lobe of the lip crimson purple, with the disc bright yellow.

Messrs. Sander & Sons, St. Albans, staged a very fine group, which gained a Silver-gilt Flora Medal. It contained good examples of Maxillaria Sanderiana, Gongora galeata, Stanhopea oculata, Angræcum pertusum, Cymbidium tigrinum, Miltonia vexillaria superba, Oncidium macranthum, Cattleya × Preciosa inversa, C. Mossiæ Reineckiana, C. M. azurea, and

many showy Lælio-cattleyas, of which the most striking were L.-c. × Gladiator (L. tenebrosa × C. Mendelii), having cream-white sepals and petals prettily shaded with rose, and the front lobe of the lip rich ruby purple, and several fine forms of L.-c. × Martinetii, of which the variety splendidula had the yellow sepals and petals tinted with rose, and the lip rich claret purple with a paler margin.

Messrs. William Bull & Sons, Chelsea, received a Silver Banksian Medal for a nice group of choice Anœctochili, including a fine example of Dossinia marmorata, two others of Macodes petola, Goodyera Rollissoni, Hæmaria discolor, and a variety with more acuminate leaves called H. d. lanceolata.

A second meeting was held on July 21st, when the exhibits were again rather few in number, but excellent in quality, with the addition of two striking varieties mentioned in the next paragraph.

J. G. Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), showed a fine cut inflorescence of Eulophiella Peetersiana, which had borne twenty flowers, but from which the seven lower had been removed; also a magnificent branched spike of Renanthera Storiei with rich crimson flowers, the lateral sepals bearing darker blotches.

R. Young, Esq., Sefton Park, Liverpool (gr. Mr. Poyntz), showed his fine Cypripedium × Ultor (Lawrenceanum ♀ × Sanderianum ♂), of which a flower was shown at the last meeting. It now received an Award of Merit.

M. S. Cooke, Esq., Tankerville, Kingston Hill (gr. Mr. Buckell), showed a variety of Odontoglossum crispum having lilac tinted flowers, bearing a few brown spots.

Messrs. Sander & Sons, St. Albans, staged a fine group, for which a Silver Flora Medal was awarded. A fine lot of varieties of Lælio-cattleya × bletchleyensis (L. tenebrosa × C. Warscewiczii) were included, of which the handsome L.-c. × b. illuminata received a First-class Certificate. The sepals and petals were orange-salmon in colour, with a glow of purple, and the lip deep velvety purple, somewhat veined with maroon.

There were also fine forms of L.-c. × Martinetii, Cattleya Mossiæ cœlestis, with bluish markings on the lip; Lælia × crispa-brosa (crispa × tenebrosa) having flowers tinged with lilac, and the lip veined with claret; Cypripedium × barbato-Rothschildianum, Aëranthes grandiflorus, Pachystoma Thompsoniana, and Cirrhæa Warreana, the last-named receiving a Botanical Certificate.

Messrs. H. Low & Co., Bush Hill Park, showed Lælia majalis, Cattleya Harrisoniana alba, a form of C. Mendelii having the white flower prettily tinged with rose, and a good C. Mossiæ Wageneri.

Messrs. T. Rochford & Co. showed a form of C. Gaskelliana having the flower white with a small rose blotch on the lip, and C. Mendelii King Edward VII., a white variety, with the disc of the lip chrome-yellow.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

A MEETING of this Society was held at the Coal Exchange, Manchester, on July 17th, when there was a small but interesting display of Orchids.

W. Duckworth, Esq., Shawe Hall, Flixton (gr. Mr. Tindall), staged a good group, for which a Bronze Medal was awarded. A First-class Certificate was given to the fine white Miltonia vexillaria var. Queen Alexandra.

S. Gratrix, Esq., Whalley Range (gr. Mr. Cypher), exhibited two fine and distinct things in Lælio-cattleya × Martinetii West Point var., and L.-c. × Ingrami Gratrix's variety, each of which gained a First-class Certificate.

C. Parker, Esq., Ashton-on-Ribble, gained an Award of Merit for the interesting Cypripedium × Cassandra (C. × Goweri × Sanderianum).

Messrs. Sander and Sons staged a small group of Miltonia vexillaria and some Lælio-cattleyas, a Bronze Medal being awarded.

Messrs. J. Cypher & Son, Cheltenham, showed Cypripedium × Transvaal (C. × Rothschildianum × C. Chamberlainianum) and C. × Phœbe Cypher's variety (C. bellatulum × C. lævigatum), each of which received an Award of Merit.

Mr. A. J. Keeling, Westgate Hill, Bradford, staged a small group of plants, to which a Vote of Thanks was given.

BRASSAVOLA RETUSA.

FURTHER information about the above rare species has at last come to hand, a plant having flowered in the collection of J. W. Arkle, Esq., Holly Mount, West Derby, Liverpool, that proves identical with Lindley's type. Mr. Arkle states that it was imported with Epidendrum dichromum, which supplies a second habitat for the species, the Epidendrum named being a native of Brazil, while Lindley's type came from Maracaybo, in Venezuela. This is the third time that Mr. Arkle's plant has flowered within twelve months. The flowers are solitary, and rather small, with the sepals and petals light green, and the lip cuneate-obovate, truncate, and white, with a little green at the base. The species was described by Lindley in 1847 (*Bot. Reg.*, xxxiii., sub t. 20), from a specimen sent to the *Gardener's Chronicle* for determination.

R. A. R.

THE GENUS CAMPYLOCENTRUM.

THE flowering of the rare little Campylocentrum micranthum in the collection of J. J. Neale, Esq., of Penarth, calls attention to a genus whose history has never been properly cleared up, namely Campylocentrum. It was established by Bentham in 1881 (*Journ. Linn. Soc.*, xviii, p. 337) to replace Todaroa, of A. Richard and Galeotti, because their name was already in use for a genus of Umbelliferæ. Reichenbach united the species, together with some other plants, to Lindley's genus Aëranthes, which is now recognised as quite distinct. Nearly twenty species are known, though some very imperfectly. All are American.

C. MICRANTHUM was described and figured by Lindley as early as 1836, under the name of Angræcum micranthum (*Bot. Reg.*, t. 1772), from a specimen which flowered with Messrs. Loddiges, of Hackney. It was at first said to have come from Sierra Leone, but this was soon found to be erroneous, and Lindley mounted the drawing with Surinam specimens, and corrected the record on the sheet. Reichenbach called it Aëranthus micranthus, and also made a second species under the name of A. jamaicensis (*Walp. Ann.*, vi., p. 901), which Grisebach afterwards united with it. Angræcum Lansbergii, Rchb., f. (*Nederl. Kruidk. Archief*, iv, p. 316), is a Surinam plant which I am unable to separate. If these are all one the species is common and widely diffused, being found in Guiana, Brazil, the Lower Orinoco, Trinidad, Jamaica, and Cuba. Angræcum brevifolium, Lindl. (*Bot. Reg.*, 1840, sub. t. 68), is also very nearly allied, but the available specimens are in fruit only. The Mexican Angræcum Schiedei, Rchb. f. (*Linnæa*, xxii, p. 857) I do not know how to distinguish, but it may be added that several of the specimens that may belong here are too incomplete for exact determination.

C. PUGIONIFORME (Angræcum pugioniforme, Klotzsch, *Ind. Sem. Hort. Berol. App.*, 1851, p. 12) is the only other species which seems to have been in cultivation, having been described from a plant in the Berlin Botanic Garden, which had been sent from Caraccas by Wagener. It has, however, long been lost sight of, but, according to the description, is quite different from the preceding.

C. ORGANENSE (Aëranthus organensis, Rchb. f. in *Walp. Ann.*, vi. p. 901) is a Brazilian species, readily distinguished by its broadly ovate bracts, and short saccate strongly curved spur.

C. INTERMEDIUM (Aeranthus intermedius, Rchb. f. et Warm., *Otia. Bot. Hamb.*, p. 91; *Viddensk. Meddel.*, 1884, p. 852, t. 7, fig. 7), belongs to the same group, but has a very short straight spur. It was collected by Warming at Lagoa Santa, in Brazil.

C. POLYSTACHYUM (Angræcum polystachyum, Lindl. *Bot. Reg.*, 1840,

sub. t. 68) is a neat little Peruvian species, collected by Matthews, bearing numerous distichous racemes of small flowers, the bracts and sepals being ciliate, the spur very short, and the leaves under an inch long.

C. HISPIDULUM (Aeranthus hispidulus, Rchb. f. in *Linnæa*, xli, p. 31) was collected at Santa Martha, in Colombia, but by whom is not stated. It is a very small species, having few-flowered racemes, ciliate bracts, and a three-lobed lip, with a saccate spur.

Two or three others of this group with flat oblong leaves have been described, but the materials are not sufficient to form a judgment upon. The next three species are remarkable for having narrow terete leaves, giving them a very distinct appearance.

C. ORNITHORRHYNCHUM (Angræcum ornithorrhynchum, Lindl. *Bot. Reg.*, 1840, sub. t. 68) was collected in the province of Santa Catherina, South Brazil, by Tweedie, and has short racemes of flowers with a nearly entire lip and a clavate spur.

C. PARAHYBUNENSE (Aeranthus parahybunensis, *Rodr. Gen. et Sp. Orch. nov.*, ii, p. 245) has more slender leaves, and smaller flowers, with a three-lobed lip and a clavate spur. It was collected at the river Parahyba, in the province of Minas Geraes, by Rodrigues, and also on the Organ Mountains, by Miers.

C. WAWRÆ (Aeranthus Wawræ, Rchb. f. ex G. Beck. Itin. Princ. Sax. Coburg, ii, 1888, p. 156, t. 17, fig. B) is a small caulescent Brazilian species, having short leaves, few-flowered racemes, and a three-lobed lip, with a short saccate spur.

There now remains a remarkable leafless group, recalling the leafless species of Angræcum, inasmuch as the nutrition of the plant is carried on by the numerous chlorophyll-bearing roots. The two first named species are caulescent, and the others practically stemless.

C. SELLOWII (Angræcum Sellowii, Rchb. f. in *Linnæa*, xxii, p. 857) was collected in Brazil, by Sellow, and has elongated stems, bearing an elongated root from each node, and short racemes, those that I have seen being in fruit only.

C. PŒPPIGII (Angræcum Pœppigii, Rchb. f. in *Linnæa*, xxii, p. 848) is a second caulescent leafless species, collected by Pöppig, in Cuba, in 1824.

C. PACHYRRHIZUM (Aeranthus pachyrrhizus, Rchb. f. in *Flora*, 1865' p. 279) is an acaulescent Cuban species, remarkable for its thick fleshy roots, and short racemes of flowers, with distichous bracts. A spathaceus, Griseb (*Cat. Pl. Cub.*, p. 264) is identical. It is also known from Jamaica and Guiana.

C. TENUE (Angræcum tenue, Lindl. *Bot. Reg.*, 1840, sub. t. 68), is a remarkable little acaulescent species, bearing slender racemes from the centre of a tuft of roots, and the flowers distichously arranged, with a saccate

spur about as long as the sepals and petals. It was collected on trees near Pará, by Martius, and is also in Burchell's collections.

C. FILIFORME (Epidendrum filiforme, *Swartz Prodr.*, p. 120) is the earliest known species of the group, having been described as early as 1788. It is a common West Indian plant, and was originally found in San Domingo, by Swartz, but has also been met with in Jamaica, Cuba, and Trinidad. It has copious flexuose roots, and long slender spikes of very minute flowers. Angræcum fasciola, *Lindl. Bot. Reg.*, 1840, sub. t. 68, and A. Wiegeltii, Rchb. f. in *Linnæa*, xxii, p. 857, from Guiana, must be very nearly allied.

C. MONTEVERDI (Aeranthus Monteverdi, Rchb. f. in *Flora*, 1865, p. 279) is a small Cuban species, collected near the city of Monte Verdi, by C. Wright.

C. PORRECTUM (Aeranthus porrectus, Rchb. f. in *Flora*, 1865, p. 279) is another small Cuban species collected by Wright, having longer racemes and broadly elliptical fruit. It has also been collected in Jamaica.

THE HYBRIDIST.

PAPHIOPEDILUM × KOH-I-NOR.—Under this name we have received a very interesting hybrid from the collection of Reginald Young, Esq., Sefton Park, Liverpool (gr. Mr. Poyntz), which was raised from P. × œnanthum superbum ♀ and P. × T. B. Haywood ♂, and thus has five species in its ancestry, namely P. villosum, barbatum, insigne, superbiens, and Druryi. It is the second hybrid raised by Mr. Young in which five distinct species are represented, the other being P. × Kubele (× œnanthum superbum ♀ × Youngianum ♂), and it may be interesting to note that the only difference in the former is the substitution of one-fourth Druryi blood for one-fourth philippinense, the two, however, being widely different. The result is a remarkable blend, the hybrid retaining some of the yellow of P. Druryi above the middle of the dorsal sepal, and a dark purple median band, traces of the P. superbiens spotting in the petals, of the P. barbatum colour, of the P. villosum shape and glossiness, with faint indications of the P. insigne spotting in the dorsal sepal; but the characters in every case are greatly modified and blended. The flower may be compared to a somewhat enlarged P. × œnanthum, and the prevailing colour is light purple, with some darker spots at the base of the petals, the median band and nerves of the dorsal sepal dark purple, and the apex and margin white, with a little yellow below the apex, and the base bright green. It bears a general resemblance to P. orphanum, in which the characters of P. barbatum and P. Druryi are united.

PHRAGMOPEDILUM × CARDINALE AND P. × LEUCORRHODUM.

THE accompanying illustrations represent two very beautiful hybrids which are variously known in gardens under the names of Cypripedium or Selenipedium, but which it is now known form a quite distinct genus. The differences have already been pointed out, and it will suffice to mention here that the last-named is a small genus of reed-like plants not at present known in cultivation, and which if received out of flower would probably be classed as Sobralias. The species and hybrids of Phragmopedilum are very floriferous, and some of them may be described as almost ever-

FIG. 41. PHRAGMOPEDILUM × CARDINALE.

blooming plants, flower after flower appearing on the same spike for months in succession. They are also of the easiest possible culture, and the chief drawback they possess is that they take up a considerable amount of room, and have a habit of dropping their flowers while still fresh.

P. × CARDINALE (fig. 41) is a very beautiful secondary hybrid, raised by Messrs. James Veitch & Sons from P. × Sedeni ♀ and P. Schlimii albiflorum ♂, which flowered for the first time in 1882. The sepals and petals are white, sometimes with a faint flush of pink, and the lip bright carmine-rose, and thus producing a very effective contrast. It received a

First-class Certificate from the Royal Horticultural Society in December, 1883.

P. × LEUCORRHODUM (fig. 42) was also raised by Messrs. James Veitch & Sons, from P. Roezlii × P. Schlimii albiflorum ♂, and flowered for the first time in 1885. The general colour of the flower is delicate blush, with a suffusion of pink on the upper sepal, and at the apex and margin of the petals; while the lip is rose-pink, and the infolded side lobes of the lip ivory white; the staminode fringed with purple hairs at the back. It received a First-class Certificate from the Royal Horticultural Society in April, 1891. There are at least three other hybrids which have the beautiful P.

FIG. 42. PHRAGMOPEDILUM × LEUCORRHODUM.

Schlimii albiflorum for one parent, namely P. × Brysa. P. × Cleola, and P. × Sedeni candidulum, all of which were raised by Messrs. James Veitch & Sons.

CATTLEYA MENDELII DOUBLE.—We have again received a flower of the remarkable double form of Cattleya Mendelii, figured at page 241 of our seventh volume, from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury. Mr. Rogers remarks that this is the fourth time that it has flowered, and proved constant.

ORCHIDS AT BRUGES.

FIVE years ago we had the pleasure of seeing Messrs. Sander & Sons' establishment at Bruges, when it was but recently organised (*O. R.*, vi., pp. 266-267), and during the present year we have been able to renew the acquaintance. With the Orchid department we are alone concerned, and here we saw evidence of a great development, which testifies to the growing popularity of these beautiful plants.

We first entered a large Odontoglossum house, having open stages, both in the centre and at the sides, and found an extensive series of plants, in excellent health, and producing a forest of spikes, of which a considerable number were already expanded. Some good O. crispum were in bloom, showing the usual range of variation in shape, colour and markings, and one of these bore a spike of no less than twenty-one flowers. There were also many O. triumphans, and its variety latisepalum, in bloom, and Mr. Sander stated that the latter is a quite distinct geographical form, coming from the Bogota district with O. crispum, and although very variable can always be distinguished by the shape of the lip and a pale, nearly white, stripe across the petals. The natural hybrid, O. × loochristiense, comes with the latter. The typical form of O. triumphans comes from Ocana, with O. Pescatorei, and among them are occasional examples of O. × excellens. It would be very interesting to study the two forms geographically in this way to see whether the differences mentioned are constant. One form of O. triumphans, it may be added, was of a rich orange colour. We also noticed several pretty forms of O. × Adrianæ, and some O. Hunnewellianum, which came in an importian of O. crispum from one particular locality, and it is said that examples of both O. gloriosum and O. × Andersonianum were also found among them. Other Odotoglossums seen in flower in this house were examples of O. Pescatorei, tripudians, × Andersonianum, luteopurpureum, and a very fine form of O. × Coradinei. There were also a few good capsules of hybrid seed.

The next two houses also contained quantities of Odontoglossums, together with a good blotch of Ada aurantiaca from Ocana, and here we noted good examples of O. Hallii, O. cirrhosum, and a remarkable yellow form much like the latter, but rather finer, and with a large brown blotch on the lateral sepals, and another on the lip. We also noted a very vigorous example of O. × Rolfeæ, and several good capsules.

Then came a house of Cattleyas and Cypripediums, where we noticed good examples of Cattleya intermedia, C. Mendelii, and Lælio-cattleya × Pallas, followed by four houses of Cattleya labiata, computed to contain ten thousand plants. After this came two houses containing imported Vanda cœrulea and Cattleyas. The former were being put into moss to

recover from the effects of the journey, but it was remarked that they had travelled very well. The next six houses contained fine examples of Cattleya Harrisoniana and others, Dendrobium Wardianum, Lælia purpurata, white forms of L. anceps, L. harpophylla, L. pumila, L. autumnalis, with a fine L. × alba, said to have been collected in flower, a few Lælio-cattleya × elegans, and miscellaneous subjects, and we noted in flower the pretty little Leptotes bicolor, Epidendrum patens with pendulous racemes of whitish flowers, and some good Cattleya Schrœderæ. There were also a number of seed capsules and some hybrid seedlings.

Succeeding houses contained a fine batch of Odontoglossum grande Lælia anceps, Cypripediums, Oncidium concolor, O. Marshallianum, Cymbidium Lowianum, and a lot of miscellaneous things, and among other things that we saw in flower were the handsome Chondrorhyncha Chestertoni, some good Cypripedium Lawrenceanum, Lælio-cattleya × bletchleyensis, Phaius × Norman, and a curious Phaiocalanthe bearing two spikes, and everyone of the flowers without a lip.

Leaf-mould is used here to an enormous extent, and even without the admixture of other ingredients, and is said to give quite satisfactory results, even without a covering of moss, the pots used being as small as will accommodate the plants. In short, the collection is a most extensive one, the great majority being imported plants and in the most thriving condition.

CIRRHOPETALUM COLLETTII.

THE name "Cirrhopetalum proliferum, Hort.," appears in the Kew Hand-List of Orchids (p. 57), but I have failed to trace any further particulars about it. It was evidently included as one of "a few names current in gardens . . . which have not as yet received a final botanical revision," and which were "indicated by the abbreviation '*Hort.*,' appended to them" (see page 12). The identity of the plant has remained in doubt down to the present time. Now, however, a plant so labelled has flowered at the Royal Botanic Gardens, Glasnevin, and has been submitted to Kew, by Mr. F. W. Moore, for determinaton. It proves to be the hand-some species, C. Collettii, Hemsl., a native of Upper Burma, which is figured at t. 7198 of the *Botanical Magazine*.

The circumstance fortunately enables the matter to be set at rest. It would, however, be interesting to know when and where the name C. proliferum originated. C. Collettii was described in 1890 (Hemsl. in *Journ. Linn. Soc.* xxviii., p. 131, t. 201. It is a native of Upper Burma, and was discovered by Sir Henry Collett, after whom it is named.

R. A. ROLFE.

ORCHIDS IN SEASON.

SEVERAL beautiful Orchids are sent from the collection of R. I. Measures, Esq., Cambridge Lodge, Camberwell, by Mr. Smith. First may be mentioned a beautiful inflorescence of Miltonia × Bleuana bearing eight flowers. The plant was not allowed to bloom last year, with the result that this year it has made two strong bulbs, each of which has produced an eight-flowered raceme. Then there are two good forms of the superb Cattleya Warscewiczii, differing chiefly in colour, one being considerably lighter than the other, and having the eye-like blotches on the lip very pale yellow. Other handsome things are a very fine flower of Lælio-cattleya × Parysatis (C. Bowringiana and L. pumila), combining the best qualities of both parents, an inflorescence of Vanda Roxburghii, a plant now not often seen, a fine flower of Paphiopedilum Curtisii, together with the rare Trichopilia Galeottiana and Masdevallia trinema; the whole being well grown, and forming a very effective little group. Mr. Smith also sends a photograph showing fourteen flowers of Paphiopedilum Godefroyæ leucochilum, of which they have had a fine show.

A fine flower of Cattleya Warscewiczii is sent from the collection of J. Wilson Potter, Esq., of Croydon, having rosy lilac sepals and petals, and a very rich crimson lip, with the two eye-like blotches light yellow in colour. A good dark form of Lælio-cattleya × elegans is also enclosed.

Several interesting Orchids have been sent from the collection of J. J. Neale, Esq., of Penarth, by Mr. Davy, including a good Aërides Lobbii, an inflorescence of D. moschatum, a good Lælia purpurata, Maxillaria grandiflora, which is said to flower both in June and December in the collection, the handsome Oncidium crispum, Epidendrum nemorale, Masdevallia Davisii, Veitchiana, coccinea, and melanopus, the latter being delicately fragrant, Odontoglossum sceptrum, O. angustatum, and the pretty little Maxillaria tenuifolia. Of the latter Mr. Davy remarks that it does very well in the Intermediate house potted in leaves just like an Odontoglossum, but that it wants a good rest after growth is matured to induce it to flower freely.

A handsome seedling Paphiopedilum is sent from the collection of Mrs. Ross, of Florence, whose parentage is somewhat uncertain, though the gardener says it came from P. × selligerum and perhaps superbiens, but Mrs. Ross thinks that P. Rothschildianum was one of the parents. It is a vigorous grower with handsomely marbled leaves, and flowers in racemes. The dorsal sepal is closely lined with purple-brown on a light ground, and the drooping petals three inches long, and somewhat similar in colour. The question of parentage may be cleared up hereafter, as similar crosses have been made.

CIRRHOPETALUM ROXBURGHII.

IT is remarkable that an Indian species of Cirrhopetalum described upwards of seventy years ago should still have to be classed as imperfectly known. The above plant was originally described as Aërides radiatum, by Roxburgh (*Fl. Ind.* iii, p. 476), from specimens found by Dr. Carey, "indigenous on trees in the delta of the Ganges, where it blossoms about the beginning of the rains." It was afterwards called Cirrhopetalum Roxburghii by Lindley (*Gen. and Sp. Orch.*, p. 58), who, however, knew it only from description and an unpublished drawing. Some sixty years later it was figured in the *Icones Plantarum* (t. 2057, fig. A), when Sir Joseph Hooker remarked:—"The figure is a copy of Roxburgh's drawing of his Aërides radiatum, a plant which is probably common in the Sunderbunds, but of which I have seen no specimen." At length the species appeared in cultivation, a photograph of a plant from Sir Trevor Lawrence's collection appearing in the *Transactions of the Royal Horticultural Society* (xxvi, p. 139, fig. 70), when the inflorescence was described as like a tiny pink parasol. Now it has flowered with Mr. F. W. Moore, in the Royal Botanic Garden, Glasnevin. The plant forms a neat little tuft, the pseudobulbs being small, separated by short intervals on a creeping rhizome, and monophyllous, the leaves being oblong, and about 1½ to 2 inches long. The scapes are rather longer than the leaves, and bear about ten flowers in a graceful umbel, measuring about 1¼ inches in diameter. The flowers are straw-coloured, with three purple lines on the dorsal sepal and petals, while the lateral sepals are dotted all over with dull red-purple, and the lip is yellow, lined with red. The dorsal sepal and petals are setiferous at the apex and strongly ciliate at the margin. Roxburgh's drawing shows the lateral sepals bright yellow and unspotted, but a trace of spotting appears in the dissections, and some other drawings by the same native artist are faulty in colour. Other details are quite in agreement, and the rediscovery of such a long-lost plant is interesting.

R. A. ROLFE.

ORCHID HYBRIDISATION.

(*Continued from page* 217).

THE pricking off of the young seedlings requires to be done with a good deal of care and discretion, especially if, as sometimes happens, they come up too thickly. In the latter case it is a good plan to prepare another pan of compost. A sharp pointed stick should be used for the purpose of lifting them, care being taken not to injure them, and they should be placed in a minute cavity in the new compost, and given a light spraying to settle

them. Where, however, they have sufficient room, and on a suitable compost, the operation may be deferred to a somewhat later period, when they can be more conveniently handled. But in all cases care must be taken not to damage the roots. It is also important that the young seedlings should never be allowed to get dry, otherwise they will shrivel and die, being extremely delicate at this early stage.

When the plants are large enough to be potted off singly a number of thimble pots, about an inch in diameter, should be obtained, and these should be half filled with clean finely broken crocks, on which the compost is placed. This may consist of finely chopped peat and sphagnum, with an admixture of oak leaves in flaky condition that have been rubbed through a rough sieve, and the finer particles afterwards sifted out. A little rough sand or broken charcoal may also be added, after which the ingredients should be well mixed. The plants are now potted, and afterwards well watered to settle the compost. The tiny pots may then be plunged into baskets of peat, and suspended near the roof glass, after which the plants should be induced to grow as freely as possible.

After they become established in these thimble pots the chief thing to be done is to pot them as they require it, and encourage them to make vigorous growth at the proper season, and rest during the winter months, gradually submitting them to the treatment required for established plants. In due time they will reach the flowering stage, and the grower will see the result of his labour, but it may be well to add that they have seldom reached their full development at the first time of flowering, and consequently improve as they become stronger.

(*To be continued.*)

CATTLEYA × SCITA.

THIS supposed natural hybrid between Cattleya intermedia and C. guttata has hitherto been known only from description (Rchb. f. in *Gard. Chron.* 1885, ii. p. 489), and it is therefore interesting to find that Mr. Day secured a painting of the original type plant (*Day Coll.* xlvii, t. 9). It is dated Sept. 19th, 1885, and Mr. Day remarks:—"Drawn at Mr. B. S. Williams', from a plant which he bought in flower at Stevens', last Thursday, when I was there, and which I wanted myself, chiefly for drawing, as it is distinct from anything I have ever seen before. The curious buff colour of the sepals and petals, and the very remarkable lip, with the long narrow neck of the middle lobe suddenly widening at the apex, are very peculiar. The plant resembles C. intermedia. It may be a natural hybrid, but it is an imported plant, as the old bulbs clearly show. They are clavate, stout, broadest at the very top just under the leaves,

10 in. by ⅞. Leaves two, very stiff, coriaceous, 5½ in. by 2½. It occurs to me that it may be a hybrid between C. intermedia and C. amethystoglossa, of H. G. R., figured in *Sc. Bk.* xii, 57, and which has a labellum much like this, and brownish sepals and petals. Named and described by Prof. H. G. R. in *G. C.* Oct. 17th, 1885." Now the C. amethystoglossa just cited is C. porphyroglossa, Rchb. f., as has recently been pointed out (*O. R.*, x, pp. 330, 331), and a comparison of the figures fully bears out Mr. Day's suggestion of its origin and parentage. The resemblance to C. porphyroglossa in the lip of C. × scita is particularly marked, and on the other hand we have the information given by Reichenbach that "Mr. Williams imported this very fine novelty amidst a mass of Cattleya intermedia," and the approach to C. intermedia in other parts of the flower. Reichenbach thought C. guttata was the other parent, and added:—"There can scarcely be a doubt about its origin. Substitute C. porphyroglossa for C. guttata, and the remark still holds good. It would be interesting to know what has become of the original plant of C. × scita.

R. A. ROLFE.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, during August, on the 4th and 18th, when the Orchid Committee will meet at the usual hour, twelve o'clock noon.

The Manchester and North of England Orchid Society will hold a meeting at the Corn Exchange, Manchester, on August 14th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 3 p.m.

The Gold Medal of the Massachussetts Horticultural Society has been awarded to Mr. E. O. Orpet, gardener to E. V. R. Thayer, Esq., S. Lancaster, Mass., in recognition of his work in hybridising Orchids, of which numerous exhibits have been made at meetings of the Society during recent years. On the particular occasion when the award was made (August 30, 1902) a group of twelve plants, representing nine distinct crosses, was exhibited, one of which received a First-class Certificate, namely Lælio-cattleya × Gladys (L. tenebrosa × C. Gaskelliana alba). "The flower is a pleasing shade of lemon yellow in colour with a lip of lilac rose and prettily veined."—*Trans. Mass. Hort. Soc.* 1903, p. 148.

Captain C. C. Hurst, F.L.S., will read a paper at the meeting of the British Association, at Stockport, entitled "Recent Experiments in the

Hybridisation of Orchids," in which he will deal with the forms of Paphiopedilum × Hera, "False Hybrids" of Zygopetalum, &c.

ORCHID PORTRAITS.

CATTLEYA × OWENIANA.—*Journ. Hort.*, 1903, i, pp. 96, 97, with fig. A fine form of C. × Hardyana.

CATTLEYA WARNERI ALBA.—*Garden*, 1903, ii, p. 47, with fig.

CYPRIPEDIUM ACAULE.—*Garden*, 1903, ii, p. 41, with fig.

CYPRIPEDIUM × FAIRY QUEEN.—*Amer. Gard.*, 1903, p. 335, with fig.

CYPRIPEDIUM PUBESCENS.—*Garden*, 1903, ii, pp. 41, 42, with fig.

CYPRIPEDIUM SPECTABILE.—*Garden*, 1903, ii, pp. 40, 41, with fig.; *Journ. Hort.*, 1903, ii, p. 27, with fig.

CYPRIPEDIUM VENUSTUM MEASURESIANUM.—*Journ. Hort.*, 1903, ii, p. 71 with fig.

MILTONIA VEXILLARIA VAR. KAISERIN AUGUSTA.—*Garden*, 1903, ii, p. 33, with fig.

ODONTOGLOSSUM CRISPUM VAR. GRAIREANUM.—*Garden*, 1903, ii, p. 67, with fig. VAR. SIBYL.—*Gard. Chron.*, 1903, ii, p. 37, with fig.

ORCHIS LATIFOLIA.—*Gard. World*, 1903, pp. 599, with fig,; *Garden*, 1903, ii, p. 62, with fig.

PHAIUS × CHAPMANII SUPERBUS.—*Journ. Hort.*, 1903, ii. p. 47, with fig.

THUNIA MARSHALLIÆ.—*Gard. World*, 1903, p. 635, with fig.

TRICHOPILA SUAVIS.—*Amer. Gard.*, 1903, pp. 331, 335, with fig.

VANDA TRICOLOR TENEBROSA.—*Journ. Hort.*, 1903, ii, p. 3, with fig.

CORRESPONDENCE.

(Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.)

D.M.G. There is no trace of fungus on the flowers of Odontoglossum crispum sent. The numerous brownish specks are due to some injury to the tissue, as if the flowers had been sprayed or splashed with something caustic. This may help you to trace the cause, espcially as the plants are healthy and the flowers were perfect at the previous flowering.

H.A. Oncidium lamelligerum.

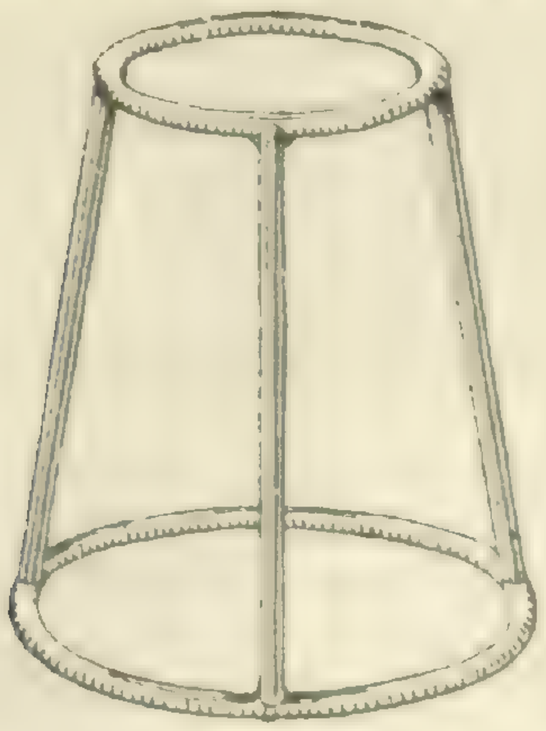
G.M.L. Rhynchostylis retusa.

C.W.D. Flower of Pleurothallis not found.

H.J.C. Not yet to hand.

Photographs received, with thanks. J.S., J.M., C.C.H., J S A., A.W.H.

MURRAY'S PATENT ORCHID STAND.



Effectually prevents the destructive fungoid growth arising from stagnant air.

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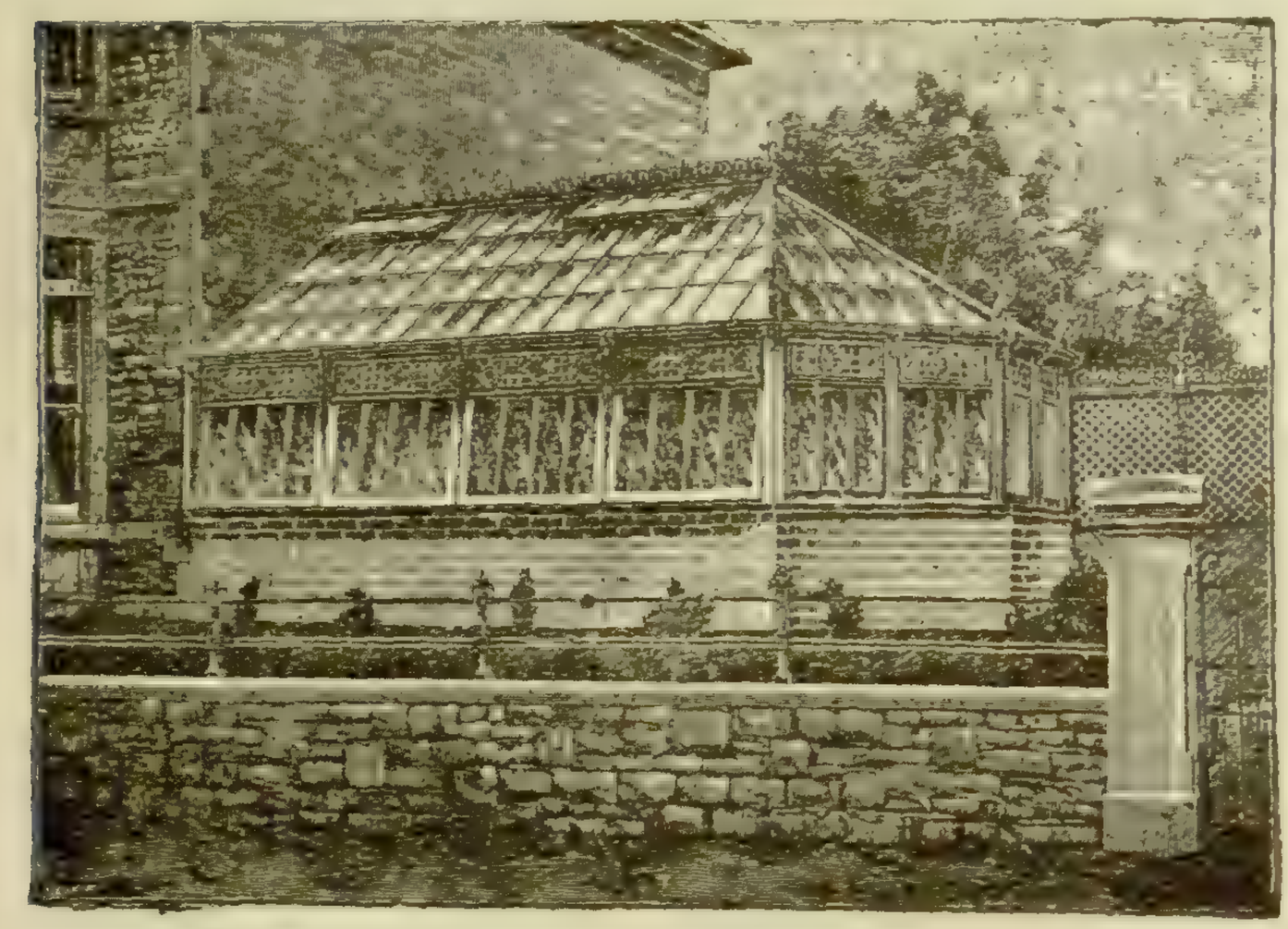

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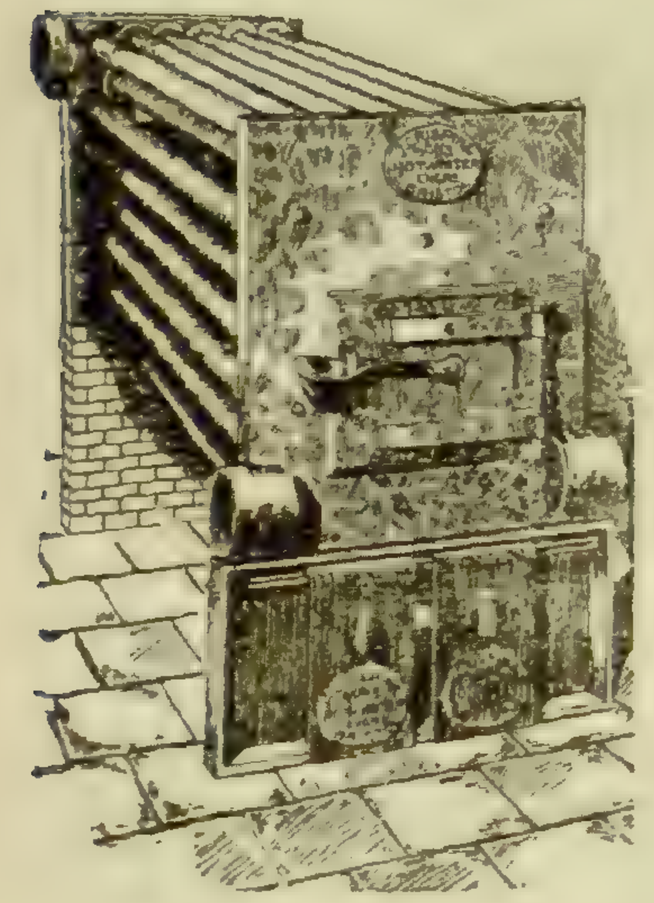

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An Illustrated Monthly Journal of Orchidology.

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THE ORCHID REVIEW.

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A HYBRIDIST'S COLLECTION.

THE fascinating work of raising Orchids from seed is being carried on with great enthusiasm and success in the collection of R. G. Thwaites, Esq., of Streatham, which we have just had the pleasure of inspecting. It is but a few months ago that the first home-raised seedling flowered in the collection —namely the beautiful Dendrobium × Thwaitesiæ (see page 120)—and we were hardly prepared to find there between twenty-five and thirty thousand seedlings in various stages, representing over one hundred and fifty different crosses. It may truly be described as a hybridist's collection, for most of the species it contains have been selected with a view to using them for hybridising, and evidence of the work in progress was visible on every hand. It was interesting to find that the hybridist is a lady, Mrs. Thwaites herself, and few others could show such a remarkable series of successes, while the charge of the collection is in the capable hands of Mr. Black, who has proved himself an expert in the raising of seedlings.

We first entered a medium-sized house, completely filled with young seedlings, in various stages, and in the healthiest possible condition, those from Brassavola Digbyana being a particularly interesting lot. Cattleya Schrœderæ alba, C. Eldorado alba, and C. intermedia alba have each been crossed with the pollen of a good form of B. Digbyana having no trace of purple on the flower, while the latter has been crossed with C. Mossiæ Wageneri, and all are now represented by young seedlings of great promise. Seedlings from C. Dowiana aurea, C. superba, C. Mendelii with clear white sepals and petals, and Lælia xanthina, all crossed with B. Digbyana, were also interesting, and it may be added that this species has been crossed with most of the ordinary Cattleyas and Lælias.

The raising of albino Cattleyas is being carried on with great success, the seedlings here noticed being derived from C. Eldorado alba × intermedia alba, C. Gaskelliana alba × Harrisoniana alba, C. × Schrœderæ alba and C. intermedia alba × Mossiæ Wageneri, and the last-named self-fertilised. In another house we saw capsules of C. Trianæ alba self-fertilised, and C. labiata Amesiana × labiata R. I. Measures' variety. In the case of self-fertilised forms the pollen is taken from another flower or plant if possible,

and it has been found that seedlings result with greater certainty than when hybridised. It will be interesting to see if all the seedlings from white Cattleyas are true albinos.

C. Dowiana hybrids are well represented, there being seedlings derived from crossing with pollen of C. Trianæ alba and Lælia xanthina; also C. Mendelii and C. labiata × Dowiana aurea. The latter crossed with C. Warscewiczii and the reverse cross are, of course, C. × Hardyana. Other interesting seedlings pointed out were C. labiata × Hardyana, C. superba × Warscewiczii, and C. Trianæ alba × Lælia Cowani.

The Sophronitis seedlings were an interesting little group, the respective pollen parents being Cattleya Mendelii, C. Percivaliana, C. Dowiana, C. amethystoglossa, and Brassavola Digbyana, the latter being specially interesting. C. Mendelii × S. grandiflora is interesting as the reverse of the cross first-named.

There were also a lot of interesting Dendrobium seedlings, the more noteworthy being D. Ellisii album × nobile virginale, D. n. Sanderæ × Wardianum album, D. Findlayanum × nobile Ballianum, and the last-named × D. n. Sanderæ. Among other interesting things seen in this house we must mention seedlings of both Cymbidium Lowianum and C. × eburneo-Lowianum × Tracyanum, and the former should prove the parentage of the natural hybrid C. × I'Ansoni, figured at page 209 of our eighth volume.

We next inspected a Cool House, where our attention was arrested by about a score Odontoglossums bearing capsules in various stages, one plant of O. Pescatorei bearing as many as five pods. Cochlioda Nœtzliana also carried two pods, as the result of crossing with O. crispum and O. × Adrianæ. Other interesting crosses were O. Rossii × crispum (two pods), O. Pescatorei × Wilckeanum, and O. Pescatorei × crispum. Over a dozen plants of Sophronitis grandiflora carried seed-pods, representing crosses of various kinds, and we saw one very interesting seedling obtained by crossing Oncidium tigrinum with the pollen of Odontoglossum crispum; also two purchased plants of the handsome O. × armainvillierense.

In another house we noted batches of seedlings from Dendrobium Findlayanum × nobile virginale, Cattleya bicolor × Warscewiczii and Hardyana, Sophronitis grandiflora × Cattleya Mendelii, Lælia tenebrosa × S. grandiflora, Brassavola Digbyana × C. intermedia alba, and many others in thriving condition. Incidentally it may be remarked that the last-named seedlings came from the very capsule figured at page 249 of our last volume, so that the figure may some day be historically interesting.

The next house was particularly interesting, for in it we saw two pods of Dendrobium Brymerianum × crepidatum, one of D. Phalænopsis × Brymerianum, and three of D. fimbriatum crossed with, respectively, D.

Brymerianum, D. albosanguineum, and D. × Thwaitesiæ. This is interesting, for Mr. White, of Burford, once made over a hundred attempts to fertilise D. fimbriatum, without obtaining a single capsule (*O.R.* i. p. 17). But Mrs. Thwaites had an even longer record of failure with D. Brymerianum before succeeding (See *O.R.* ix. p. 341). And *success* it certainly is, for seedlings of D. Brymerianum × crepidatum were pointed out, also from D. fimbriatum and D. atroviolaceum crossed with D. Brymerianum. Seedlings of Dendrobium nobile virginale self-fertilised will be watched with curiosity to see if they come true, and batches of D. aureum, D. Findlayanum, and D. × splendidissimum all crossed with D. × Wiganiæ should produce flowering examples next year. We noted here several Cattleya pods, including C. Mossiæ Wageneri self-fertilised, and five pods of Brassavola Digbyana, in two cases Sophronitis grandiflora and Cattleya Trianæ alba being the pollen parents, while in flower were good examples of C. superba and Lælio-cattleya × elegans.

We now entered another seedling house, containing batches of many interesting crosses, and here we observed that all the supports to the stages stood in troughs of water, which is considered to be a very effective check to marauding insects. Here seedlings from Brassavola Digbyana were very numerous, and one from Lælia grandiflora (majalis) crossed with pollen from the former appeared quite intermediate in character. Sophronitis grandiflora crossed with Lælia purpurata and Cattleya Dowiana aurea, should prove good, also C. superba crossed with the latter, while Lælia Jongheana × Cowani is interesting. We noted also L. xanthina and C. bicolor × C. Dowiana aurea, C. Trianæ × L. flava, C. Warscewiczii × L. Perrinii alba (from a cross made by Mr. Thompson, of Stone), and a nice batch of Lælio-cattleya × callistoglossa, one of which bore a variegated growth.

Passing through a house of Odontoglossum crispum in good condition, with a few in flower, we came to a house containing the seedlings, and a most interesting lot they were. Between two and three hundred had just been pricked off, having been sown on the compost of established plants, and examination with a lens showed many other tiny globes which looked as healthy as need be. Some have also been sown here on canvas, and others placed in a warm house, but the results have yet to be seen. The older method, however, proves very successful. There was also a nice batch of last year's seedlings, some over a year old, and a few were making the fifth leaf. We noted a little batch of O. crispum × luteopurpureum, and O. triumphans × Pescatorei: also seedlings obtained by intercrossing blotched forms of O. crispum, of which the results will be awaited with interest. There were also O. crispum × Harryanum, O. Rossii × crispum and triumphans, O. Pescatorei × loochristiense, and O. triumphans × Adriaæ.

It is very satisfactory to find that the raising of Odontoglossum seedlings is being pursued with such success, and we hope that before long some of the difficulties encountered in the study of natural hybrid Odontoglossums will be removed by experiments in this direction.

The foregoing notes will suffice to show what an interesting work is being carried on here, all the crosses being select, or with some definite object in view, and we shall hope to hear of some of them again as they reach the flowering stage.

COLAX TRIPTERA.

THIS interesting little plant, which flowered at the Royal Botanical Gardens, Glasnevin, in 1898, and on subsequent occasions, is again in bloom. The sepals and petals are oblong, an inch long, and light green, the latter being closely dotted with dusky brown. The lip is three-lobed, the ground colour white, and the whole of the crest and side lobes lined with rows of nearly confluent purple dots. The column is white, and the anther so much curved near the apex as to be concave at the back. The ovary is whitish, and bears three narrow green wings. Mr. Moore remarks that it was obtained from Mr. A. W. Grimsditch in 1895 as Colax jugosus, so that it is probably Brazilian. It is, however, nearer to C. modestior, Rchb. f., whose habitat was given as "Guatemala?" The latter species, by the way, has not re-appeared.

R. A. R.

EPIDENDRUM IMSCHOOTIANUM.

THIS remarkable species has again flowered in the Royal Botanical Gardens, Glasnevin. It is a tall plant, bearing erect stems about three feet high, very short coriaceous leaves, and a terminal raceme of about six to fourteen flowers. The apex of the inflorescence arches over, but the flowers themselves remain erect. The sepals are oblong, nine to ten lines long, spreading, and light green, tinged with dull purple, especially at the back. The petals are narrower and light green, and the lip three-lobed, with oblong subobtuse lobes, and white tinged with green at the margin. It belongs to Lindley's section Amphiglottium, having numerous imbricating bracts below the inflorescence, and to the division Schistoglossa Integra, the lip being three-lobed, with entire lobes. It was introduced by Messrs. Sander, and flowered at Kew, and in the collection of M. Houzeau, Hyon, Mons, Belgium, in 1893, and at Glasnevin in 1898. Its habitat is not on record.

R. A. R.

ORCHIDS AT ST. ALBANS.

THE great development which has taken place during recent years in the business of raising Orchids from seed has left its mark upon the well-known establishment of Messrs. Sander & Sons, St. Albans. Several additional houses have recently been built for the accommodation of the enormous number of seedlings which the establishment contains, and at the present time we find that two others are being entirely reconstructed and adapted to this purpose. The raising of Cattleyas and Lælias is being especially followed up, and nearly all the best combinations possible are now represented by batches of plants in various stages, from the smallest seedlings up to those in sheath, or by seed capsules not yet ripened. It was extremely interesting to go through the establishment and see the various stages of the work, but as we found over thirty houses more or less devoted to Orchids, seedling or imported, it is obvious that we can only mention a few of the more interesting features, and these we may enumerate in the order of our notes.

In the first two houses we found chiefly small seedlings of Cattleya and Lælia up to about a year old, the younger pricked off for the second time into a compost of finely chopped peat fibre and sphagnum, and the others potted singly into leaf-mould. This is the practice adopted, and the seedlings were as healthy and vigorous as could be wished, a remark which applies to the collection generally.

The next four houses were largely devoted to Cypripedes, in various stages, some being in flower, among those noted being a well-coloured C. × enfieldense, forms of C. × Lord Derby, one bearing three fine spikes, each with three flowers, several C. × Transvaal in flower and bud, a spotted form derived from C. superbiens and C. tonsum, C. Curtisii × bellatulum bearing a two-flowered scape, a few early C. insigne, and the richly coloured C. × Harrisianum superbum, a plant said to be nearly always in bloom, and of which one plant now carried a twin-flowered scape. There were also numerous small seedlings germinating on the compost of the various plants, and between these and the flowering plants every stage of development was represented.

Two cool houses came next, largely devoted to Odontoglossums, those in flower being a few O. crispum, O. × Adrianæ, O. Harryanum, a good form of the natural hybrid O. × lepidum, derived from O. Pescatorei and O. Lindleyanum, the spike bearing nine flowers, and the brilliant little Cochlioda Nœtzliana. Others were in spike, and several good capsules told of hybridising operations. A little batch of Sophronitis grandiflora also carried over a dozen capsules. The next house was chiefly devoted to Miltonia vexillaria and M. Roezlii, which are found to succeed well

together, and a number of the former, with some white forms of the latter, were in flower.

We now entered a long corridor, containing imported Dendrobium Wardianum and various other things, and from which a batch of seven new houses extended at right angles. The first of these was devoted chiefly to Cypripedes, and here we saw a seedling from C. Spicerianum × nitens, bearing a considerable general resemblance to C. × Lathamianum; also C. × Ultor (Lawrenceanum × Sanderianum) bearing a three-flowered spike. A few others were in flower, and a number of capsules representing choice crosses were also noted. A good deal of care is now exercised in the selection of parents in this group, but opportunities for making promising crosses are continually presenting themselves, and the succession of young seedlings should produce some good things as they reach the flowering stage. A curious hybrid from C. Lathamianum and C. superbiens had the ground colour of the leaves mostly white veined with green. It is part of a larger plant showing the same character, and has not yet flowered.

Three succeeding houses are devoted to Cattleyas, from one and two years old up to those already in sheath. All are grown in leaf-mould and are thoroughly healthy, several being turned out of the pots to show their free-rooting character in this medium To enumerate the various crosses would be impossible, but a fine lot of C. Dowiana crosses were pointed out.

Passing through two houses of Cymbidiums, including both established species and hybrid seedlings, we came to a more miscellaneous house, where several interesting things were noted. There were a good many *Zygopetalum* seedlings, including a plant of *Z.* × Roeblingianum (rostratum × Gautieri), brought over from America last autumn: also numerous *Zygocolax* seedlings. Warscewiczella Wendlandi was carrying two fine seed-pods. A plant of Promenæa xanthina bore half-a-dozen flowers and a capsule, and it was curious to note that capsules of Colax jugosus retain the sepals and petals, which, as in the case of Phalænopsis Lueddemanniana, become green and fleshy after fertilisation, and then apparently do duty as leaves while the capsule matures. A few Pescatoreas were doing well here, and we saw some good plants of the handsome Madagascar Cynorchis purpurascens, a nice batch of Cypripedium niveum bearing some capsules, and plants of Sophronitis grandiflora in the same state. Epidendrum × Endresio-Wallisii was in flower, and it was curious to see plants of a hybrid between Diacrium bicornutum × E. radicans, which make plenty of small growths and numerous aërial roots, but never make any attempt to flower.

Another miscellaneous house contained a lot of Phaius—mostly hybrids—with P. maculatus nicely in flower, a small batch of Eriopsis rutidobulbon, Cypripedium Godefroyæ, seedling Sobralias, &c., and in flower we noted Miltonia spectabilis Moreliana and several Brassavola Digbyana. The

next two houses contained seedling Cattleyas and Dendrobiums, D. × Cassiope being in flower. We noted also batches of Phalænopsis Lueddemanniana and P. Esmeralda, the latter growing very freely and flowering in profusion. Then came a house containing Angræcums and allied things, with more seedling Cattleyas.

We now entered a range of four or five houses devoted largely to Cattleya hybrids of flowering size, where we found many features of interest. Those in flower included several good forms of Lælio-cattleya × Martinetii, L.-c. × bletchleyensis, and L.-c. × Henry Greenwood, also examples of L.-c. × Gottoiana, the curious little L.-c. × Ira (L. longipes × L.-c. × Schilleriana), L.-c. × elegans, Cattleya × calummata, C. × Mrs. J. W. Whiteley, C. granulosa, C. Dowiana, and C. Warscewiczii, together with C. Harrisoniana × Leopoldi in bud. There were also many Cattleya seed-pods representing crosses of great promise, and a plant of the rare Lælia grandiflora (majalis) alba carried a capsule obtained by crossing with some other albino. Lælia flava also bore capsules, and Cattleya Rex was pointed out as a species which has now become extremely rare, and one plant of C. elongata (Alexandræ) as now almost unique in cultivation. A plant of C. × guatemalensis var. Wichuseniana is probably part of the original one named by Reichenbach. Aërides Sanderianum was bearing a couple of good spikes, and in an adjoining house we noted a small batch of Vanda Hookeriana doing well, also some capsules on Cattleya citrina, and Lycaste.

The Cool houses followed, in which we noted a miscellaneous collection of Masdevallias, Oncidiums, Maxillarias, Lycastes, Lælia pumila, &c., those in flower including Miltonia spectabilis, Zygopetalum crinitum with two racemes, Oncidium sarcodes, O. macranthum, O. pulvinatum bearing numerous racemes, Odontoglossum Uroskinneri, O. bictoniense album, a very pale O. ramosissimum, several Cypripedium Charlesworthii, Sobralia × dellense, Masdevallia racemosa, M. Chestertoni, and various others.

After passing through two houses in course of reconstruction we came to the one containing two plants of the remarkable Arachnanthe Lowii, which are said to have flowered well this year, the best having produced twenty-one racemes of flowers. There was also a batch of Cypripedium callosum, and in one case C. Appletonianum was flowering out of the same clump. It is said that plenty of this species comes in importations of C. callosum, and it is curious how closely they resemble each other in the vegetative character.

There remained what is termed the Botanical collection, and before reaching it we noted a fine lot of Cattleya labiata, in sheath, and various other imported species. C. Dowiana and C. granulosa being in flower, and several examples of C. bicolor and C. Gaskelliana in bud; also good batches

of Cœlogyne cristata, C. Dayana, and Lælia pumila. We next observed a great rarity, in the shape of a species of Trichoceras, called T. muralis, in thriving condition. It recalled the rare Erycina in habit, and we hope will flower in due season. A few species were in flower, those noted being Sarcanthus pallidus, Catasetum maculatum, and Bulbophyllum Lobbii, and among the more showy ones Calanthe veratrifolia, Epidendrum osmanthum, Brasso-cattleya × Lindleyana, and a small batch of Cypripedium purpuratum, making a nice show.

August is a rather dull season for Orchids, but a good many interesting things were in bloom, and the number of sheaths on the seedlings promise a good supply of bloom during the autumn, and indeed a constant succession of novelties for years to come.

OBITUARY.

A. GODEFROY LEBEUF.—We regret to hear of the death of M. A. Godefroy Lebeuf. of Paris, on August 2nd, at the age of 51 years. M. Godefroy was the son-in-law and successor of M. V. F. Lebeuf, nurseryman, of Argenteuil, near Paris. He spent some time in Cambodia and Cochin China, we believe as gardener to M. Pierre, and made a collection of dried Orchids, which were deposited at Kew, and worked up by Reichenbach in the first part of the *Otia Botanica Hamburgensia*, which appeared in 1878. Here (pp. 32—37) twenty-six species are enumerated, of which nine were described as new, and these included such remarkable plants as Phalænopsis Esmeralda and Habenaria pusilla, the latter now better known under its later name of H. militaris. Four of these species were named after the collector, namely Habenaria Godefroyi, Zeuxine Godefroyi, Cyrtopera Godefroyi, and Microstylis Godefroyi. On returning home he settled down to the business of nurseryman, paying special attention to Orchids, and in June, 1881, he commenced a work on Orchids, entitled *L'Orchidophile*, of which the first volume was completed in 1883, after which a volume appeared annually until 1892, and six numbers of the eleventh volume in 1893, when the work came to an end. He also contemplated an illustrated monograph of Cypripedium, of which a single number only was issued, in the preparation of which he was assisted by Mr. N. E. Brown, of Kew, the drawings being made by Mademoiselle Jeanne Koch. The Phalænopsis Esmeralda already mentioned was introduced to cultivation by M. Godefroy in 1874, and another handsome novelty introduced by him was Cypripedium Godefroyæ, which was described by Reichenbach in 1885 (*Gard. Chron.*, 1885, i. p. 49), being dedicated to the introducer's wife. We believe that M. Godefroy was more or less engaged in the Orchid business up to the last, though for some time before the end came he was in failing health.

ODONTOGLOSSUM CRISPUM DIMORPHIC.

AT page 252 of our last volume we noted a remarkable case of diversity between two flowers on the same scape of Odontoglossum crispum, in the collection of R. G. Thwaites, Esq., of Streatham, and we have now pleasure in giving an illustration of the same, from a photograph taken by Mr. Thwaites at the time. The lower flower, it will be noticed, has the sepals almost unspotted, but in the upper each sepal bears a very distinct cluster of spots, more or less confluent in the centre. The petals are less

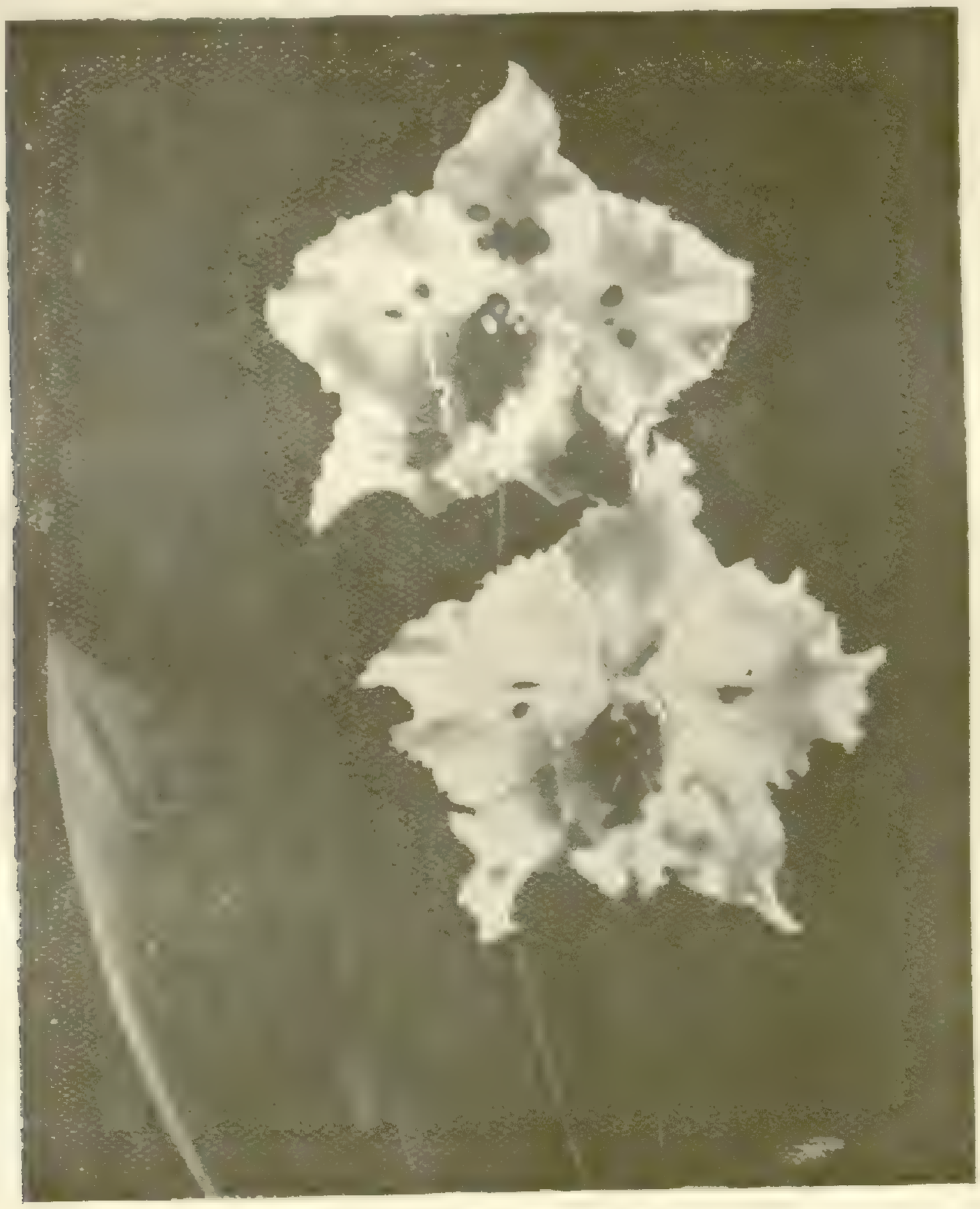

FIG. 43. ODONTOGLOSSUM CRISPUM DIMORPHIC.

diverse, but in the upper flower they are rounder and further apart. This photograph is considerably reduced, and the differences are still more striking in those taken natural size, which Mr. Thwaites previously sent. When the first flower expanded the good shape and broad segments attracted attention, and a photograph was taken natural size, and when the second opened the difference between them was so striking that a similar photograph was taken of that also, likewise a reduced one as here shown. The

petals measure 1¾ inches broad. It will be interesting to note the character of the flowers when the plants bloom again. These flowers are not without interest in connection with the question, "What constitutes Odontoglossum crispum?" because it has been argued that as soon as spots and marks appear in the flower there is evidence of hybridity. This, however, we strongly doubt, and should regard the present example as O. crispum pure and simple. It must be remembered that spots also appear in forms of O. Pescatorei, when there is no reason to suspect the influence of foreign blood, a remark which we believe applies to the present one.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of this Society was held at the Drill Hall, Buckingham Gate, Westminster, on August 4th, when the Orchid exhibits were not at all numerous, though two groups gained Silver Banksian medals, the other awards being a Botanical Certificate and two Awards of Merit. A new Sophro-cattleya also made its appearance.

W. P. Burkinshaw, Esq., Hessle, Hull (gr. Mr. Barker) sent the handsome Lælio-cattleya × Ivernia (L. tenebrosa × L.-c. × callistoglossa), and Cattleya Warscewiczii White Queen, the latter a beautiful form, having white sepals and petals, and the lip mauve-purple in front, margined with lilac, with the usual whitish yellow blotches in the throat. It gained an Award of Merit.

The Hon. Walter Rothschild, Tring Park (gr. Mr. Hill), gained a Botanical Certificate for Angræcum Rothschildianum, a remarkable species from Uganda, allied to A. Galeandræ, Rchb. f. The plant bore oblong leaves with an oblique apex, and a pendulous raceme of few flowers, each about 1½ inches across, and delicately fragrant. The sepals and petals were oblong, and white, with a light green median band, and the broad lip emerald green, shading into a broad white margin, and with a blackish-purple blotch in front of the column. The spur was broadly funnel-shaped, with a narrowed sharply curved and compressed apex.

J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), staged an interesting little group, containing Cattleya × Elvina (Trianæ × Schilleriana), C. superba with two spikes, the handsome Lælio-cattleya × Digbyano-purpurata King Edward VII., Cypripedium × Wiertzianum, C. callosum Sanderæ, C. × W. R. Lee, and two plants of C. × miniatum (Spicerianum × Fairrieanum).

Mrs. Haywood, Reigate, sent Cattleya Gaskelliana delicata.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), sent Sophrocattleya × Chamberlainiana, Masdevallia × Gairiana, Cattleya ×

intricata Rosslyn var., Lælio-cattleya × Wm. Pitt (C. Aclandiæ × L. pumila), purple with darker markings on the lip, and L.-c. × Kathleen (L.-c. × Canhamiana × L. tenebrosa), having large dark rose-coloured flowers, with some claret-coloured veining on the lip.

Sir Frederick Wigan, Bart., Clare Lawn, East Sheen (gr. Mr. Young), sent Cattleya × Mrs. Pitt (Harrisoniana × Dowiana aurea), with rosy lilac sepals and petals, and the lip white tinged with rose, with the disc yellow.

Messrs. T. Cripps & Son, Tunbridge Wells, showed a group of about thirty well-grown plants of Disa grandiflora, bearing spikes of three and four fine flowers, and producing a brilliant effect. A Silver Banksian Medal was awarded.

Messrs. Sander & Sons, St. Albans, also received a Silver Banksian Medal for a fine group of hybrids, including Lælio-cattleya × Berthe Fournier, L.-c. × Henry Greenwood, L.-c. × bletchleyensis, nine fine forms of L.-c. × Martinetii, L.-c. × callistoglossa, Cattleya × Shakespeare (granulosa × Rex), C. × The Pearl (Gaskelliana × Rex), Miltonia vexillaria, Cypripedium × œnanthum superbum and C. × tonso-Lawre.

Messrs. James Veitch & Sons, Chelsea, also sent a pretty little group, containing Sophro-cattleya × Saxa (S. grandiflora × C. Trianæ), a pretty, rose-coloured flower, with a crimson blotch on the lip, two plants of Lælio-cattleya × Issy (L. tenebrosa × C. Leopoldi), and Cattleya × Atalanta superba (Leopoldi × Warscewiczii), a particularly fine form, which received an Award of Merit.

Messrs. Hugh Low & Co., Bush Hill Park, also showed a small group, containing Cattleya × Mary Gratrix (Harrisoniana × granulosa), C. Gaskelliana, a good C. Eldorado Wallisii, Cypripedium Rothschildianum, C. niveum, C. × Kimballianum, C. × Rothschildiano-superbiens, &c.

At the meeting held on August 18th there was a much finer display, the awards consisting of five Silver Flora Medals, two Cultural Commendations, and one Award of Merit.

Captain G. L. Holford, C.I.E., Westonbirt, Tetbury (gr. Mr. Alexander), staged a group of choice things, to which a Silver Flora Medal was given, a noble specimen of Lælio-cattleya × callistoglossa excelsa bearing five racemes also receiving a Cultural Commendation. Other fine things were L.-c. × bletchleyensis, L.-c. × eximia, Vanda cœrulea bearing a noble raceme of eighteen flowers, Oncidium Kramerianum, Cattleya × intricata, C. × Fernand Denis, C. × Germania superba, with a spike of six flowers, and the handsome C. × Pittiana (granulosa Schofieldiana × Dowiana aurea).

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), also received a Silver Flora Medal for a choice group, containing the handsome Oncidium Lanceanum, Cattleya × Atalanta, C. Gaskelliana alba, C.

Forbesii, C. Loddigesii, the pretty little Lælia monophylla, Lælio-cattleya × Constance Wigan, L.-c. × elegans, L.-c. × Nysa, two plants of L.-c. × William Pitt (C. Aclandiæ × L. pumila), bearing dark purple flowers, Odontoglossum Uroskinneri album, O. Harryanum, O. crispum with a very richly coloured lip, the remarkable Bollea cœlestis, Dendrobium Victoria-Regina, Cypripedium × Felicity, and a singular little Aëranthes with a branched spike of small green flowers.

Lord Auckland, Kitley, Plymouth (gr. Mr. Matthews), exhibited a splendid inflorescence of Oncidium luridum guttatum, over 7½ feet long, and bearing fifteen side branches and an aggregate of 230 flowers. A Cultural Commendation was awarded.

W. M. Appleton, Esq., Weston-super-Mare, showed a fine form of Cypripedium × Rolfei called Appleton's var. (bellatulum × Rothschildianum), C. × Phœbe (philippinense × bellatulum), and C. × bingleyense.

J. Bradshaw, Esq., Southgate (gr. Mr. Whitelegge) showed Cattleya × Comet (Warneri × Dowiana aurea), a handsome hybrid, having rose-purple sepals and petals, and a darker lip with some yellow at the base, but less of the golden veining than usual.

J. Colman, Esq., Gatton Park, Reigate (gr. Mr. Bound), showed a form of Lælio-cattleya × elegans.

Fred Hardy, Esq., Ashton-on-Mersey (gr. Mr. Stafford), showed the handsome Sophro-cattleya × George Hardy.

C. L. N. Ingram, Esq., Elstead House, Godalming (gr. Mr. Bond), sent Lælio-cattleya × Epicasta fulgens (C. Warscewiczii × L. Dayana), a very dark form, and L.-c. × Meteor (L. Dayana × C. Bowringiana).

C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan), sent Lælio-cattleya × bletchleyensis and Cypripedium × Lord Derby.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Lælio-cattleya × Herman Holmes, L.-c. × Olivia alba, having very bright sepals and petals, and Cypripedium × Wiertzianum.

Messrs. Stanley, Ashton and Co., Southgate, staged a fine group, which gained a Silver Flora Medal. It contained the handsome Oncidium × Mantinii, O. Forbesii Borthwickianum, O. incurvum album, O. Papilio, O. Kramerianum, O. varicosum Rogersii, Cypripedium × Carnusianum and C. × Bryan, Masdevallia Veitchiana, Cattleya Loddigesii, C. Harrisoniana, a supposed natural hybrid between the preceding and C. Schilleriana, C. granulosa, C. × F. W. Wigan, a hybrid between C. bicolor and C. Rex. Lælio-cattleya × amanda, L.-c. × Cybele (L.-c. × Schilleriana × C. Trianæ), Lælia xanthina and L. × Iona Southgate variety (Dayana × tenebrosa, the latter a very fine form, with a most richly-coloured lip, which gained an Award of Merit.

Messrs. Charlesworth and Co., Heaton, Bradford, also gained a Silver

Flora Medal for a choice group, including the handsome Brassia longissima, Lælio-cattleya × Martinetii, L.-c. × luminosa aurifera, having bronzy yellow sepals and petals, L.-c. × callistoglossa, L.-c. × intermedio-flava, L.-c. × bletchleyensis, L.-c. × Adolphus superba, the handsome Sophro-cattleya × heatonensis, Masdevallia × Pourbaixiæ and × McVittiæ, Odontoglossum Harryanum, polyxanthum, and crocidipterum, Lælia × Iona superba, Stanhopea oculata, Catasetum callosum, the graceful Platyclinis filiformis, bearing numerous racemes, Oncidium Lanceanum and dasytyle, Cypripedium × Youngianum, Cattleya × Niobe, C. × Iris fascinator, C. × Ceres (Schilleriana × Lueddemanniana) and a fine Rodriguezia, provisionally named R. grandis, having the flowers more or less tinged and striped with rosy lilac.

Messrs. Sander and Sons, St. Albans, also received a Silver Flora Medal for a choice group, containing the rare Pachystoma Thomsoniana, Dendrobium formosum giganteum, Phaius maculatus, Miltonia vexillaria superba, Odontoglossum × Adrianæ, Cattleya Loddigesii, Lælio-cattleya × bletchleyensis, several good L.-c. × Martinetii, Cypripedium × Ultor (Lawrenceanum × Sanderianum), C. × Cassandra (Sanderianum × Gowerianum), &c.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

A MEETING of this Society was held at the Coal Exchange, Manchester, on August 14th, when there was a very good display of Orchids for the season.

S. Gratrix, Esq., Whalley Grange (gr. Mr. Cypher), staged a choice group, consisting chiefly of Cypripedes, to which a Silver Medal was awarded. A First-class Certificate was given to Cypripedium × Lord Derby, Sander's variety, a fine form, with broad, very densely spotted petals; and an Award of Merit to Cattleya × Pittiana, a handsome hybrid descended from C. granulosa and C. Rex.

E. Rogerson, Esq., West Didsbury (gr. Mr. Blomeley), also received a Silver Medal for a good group, in which some well-flowered plants of Cattleya Harrisoniana were conspicuous. An Award of Merit was given to Cypripedium × Rachel, a pretty hybrid derived from C. Curtisii ♀ and C. Charlesworthii ♂.

C. Parker, Esq., Ashton-on-Ribble, again exhibited Cypripedium × Cassandra.

Messrs. Charlesworth & Co., Heaton, Bradford, staged a very fine group, consisting largely of hybrids, to which a Silver-gilt Medal was awarded. A First-class Certificate was given to Cattleya × Iris var. Fascinator, and an Award of Merit to Lælio-cattleya × Adolphus superba.

Messrs. Sander & Sons, St. Albans, staged a small group of Lælio-cattleyas, &c., to which a Bronze Medal was given.

Messrs. A. J. Keeling & Sons, Westgate Hill, Bradford, staged a small group of Cypripediums, Masdevallias, &c., to which a Vote of Thanks was given.

Messrs. John Cowan & Co., Gateacre, also staged a small group, to which a Vote of Thanks was accorded.

"THE ORCHID JUNGLE."

WE learn from a recent issue of the *Indian Field* that Mr. S. P. Chatterjee, the well-known Calcutta Nurseryman and Florist, is extending his business by establishing a branch at Mihijam, a picturesque spot a hundred and fifty miles from Calcutta, and is said to be completely eclipsing all his previous efforts in the magnitude of the scheme upon which he is now busily engaged.

The "Orchid Jungle" is the appropriate name selected for the estate for Orchids; even the rarer imported varieties grow out-of-doors in a way calculated to turn green with envy the Orchid raiser in less favoured climes. It faces the main road about 100 yards from Mihijam Railway Station (E.I.R.), is a mile in length and a mile and a half in depth, and the owner is in treaty for another large slice of land which adjoins it. The estate is at present densely wooded, Sal, Mhowa, Sissoo predominating, and the value of the timber alone is considerable. It is on undulating ground with a gradual descent towards the north, and one of its chief features is the practically inexhaustible water supply. Another is the extraordinary fertility of the soil, in which almost everything grows as in the best parts of Ceylon. The very sticks put in to support plants often themselves begin to sprout! The climate is, even at this season of the year, pleasant, and in the cold weather it is downright bracing.

The view from one of the little hills on the estate is simply charming. The "Orchid Jungle" lies below with its refreshing verdure all round, its avenues opening up fresh vistas of beauty, its deep shady nooks, its cool grots and mossy dells with mountain streamlets trickling along sandy courses or tumbling over moss-covered boulders into pools fringed with silver and other fern, and overhung with creepers growing in almost aggressive luxuriance. Here and there are level areas which suggest sites for fairy cottages; anon great mounds of rock, for the property is rich in stone; on some of the terraces under cultivation are rice, dall, and other grain and seed crops. On every side stretch the emerald rice fields terraced on the rising ground which away in the distance merge into the Sonthal hills, with Panchcote well standing out from his smaller brethren, and old Parishnath looming dimly in the far horizon towards Barrakur. And here and there we catch glimpses of the little river that winds among the valleys and further on runs into the Roopnarain.

We have referred to the Orchids; it would open the eyes of those who go in for them to see how they thrive here, and though large houses are being built for their accommodation, Mr. Chatterjee is confident that he will raise many kinds out in the open, in the nooks and dells aforesaid, with as little trouble and attention as are required by the commoner ferns. The resources of the "Orchid Jungle" appear almost unlimited—abundant timber and stone, water galore, a rich climate, and other natural advantages specially suited to the operations of the florist—and in two years an immense amount has been accomplished. But much remains to be done, and to this task Mr. Chatterjee intends to address himself closely for the next few years. Here in this pretty spot he will labour with a free hand, backed by the experience his other enterprises have given him, and supplemented by the special knowledge imbibed in his travels.

ORCHIDS FROM BURFORD.

A MOST beautiful series of Orchids has been sent from the collection of Sir Trevor Lawrence, Bart., Burford, Dorking, by Mr. White. First may be mentioned a fine inflorescence of Vanda × Miss Joaquim, over two feet long and bearing nine flowers of over three inches in diameter. It certainly combines the best characters of its parents, V. teres and V. Hookeriana, and in its broad richly-coloured lip recalls the latter. Lælio-cattleya × Adolphus (L. cinnabarina × C. Aclandiæ) is a superb thing, having an eight-flowered inflorescence, the sepals and petals being deep reddish orange spotted with dark brown, and the orbicular undulate front lobe of the lip reddish crimson, with a little yellow near the apex. Two hybrids of Sophronitis grandiflora form a remarkable contrast. These are Sophronitis × Chamberlainiana (C. Harrisoniana × Sophronitis grandiflora), having the sepals and petals of a rich purplish rose, and Sophrolælia × Marriottiana var. flavescens (S. grandiflora × L. flava), of a clear deep yellow. The latter has a three-flowered inflorescence. Oncidium Jamiesoni (O. alboverrucosum) is an interesting little rarity whose history was given at page 226 of our sixth volume. O. spilopterum aureum is a lovely thing, differing from the type, which is also sent, in having the sepals and petals light green instead of purple brown, and the crest of the lip whitish yellow instead of purple. A remarkable natural hybrid, apparently intermediate between O. Forbesii and O. dasytyle, may be a form of O. × Gardneri. The panicle bears seven side-branches and an aggregate of over fifty flowers. Lastly must be mentioned the brilliant Disa grandiflora, with an inflorescence of three very fine flowers, and Odontoglossum bictoniense album. It is a very brilliant group, and the development of the flowers shows that excellent culture for which the Burford collection is celebrated.

ORCHIDS IN SEASON.

FOUR handsome hybrids are sent from the collection of the Right Hon. J. Chamberlain, M.P., Highbury, Birmingham, by Mr. Mackay. Cattleya × Brymeriana var. Macfarlanei differs from the type in having the disc of the lip deep yellow to the base, as in the C. Eldorado parent, but the stalk of the front lobe nearly half an inch long. It is a very distinct form of this rare natural hybrid. Lælio-cattleya × purpurato-Aclandiæ is fairly intermediate between its parents in shape, with the sepals and petals lilac-purple in colour, and the front half of the lip rich purple. L.-c. × Stella is a pretty hybrid derived from Lælia crispa and L.-c. × Schilleriana Wolstenholmiæ, whose characters it combines. Lastly comes L.-c. × Antigone (C. Schilleriana × L. purpurata), a fine thing, which may be compared with an enlarged form of L.-c. × elegans, the front lobe of the lip being $1\frac{3}{4}$ inches across, and, like the apex of the side lobes, of the richest purple colour, while the disc is light yellow veined with purple.

Several interesting things are sent from the collection of J. J. Neale, Esq., of Penarth. Dendrobium Phalænopsis is said to be flowering extremely well this season, and half-a-dozen pretty forms are sent, showing the usual amount of variation; also a flower of D. bigibbum. Mr. Davy remarks that all are grown in leaf-compost. The genus Masdevallia is represented by M. × splendida, the beautiful M. × Courtauldiana, a light form of M. caudata, and the rare M. Barlæana. Other good things are flowers of Cattleya Eldorado, Lælia Dayana, Lycaste leucantha, Odontoglossum Erstedii, and two forms of O. × Coradinei, one of them having the petals clear yellow, and unspotted, and the sepals only partially spotted, those of two out of four flowers very obscurely so at the base. Lastly may be mentioned a flower of Catasetum viridi-flavum, the curious little Pleurothallis elachopus, and Stelis pauciflora, another interesting little plant, having the petals elegantly ciliate, a character which is only seen to perfection when examined through a good lens.

A large and handsome form of Oncidium Forbesii is sent from the collection of E. P. Collett, Esq., New Croft, Hale, Cheshire, together with a flower of the pretty little Dendrobium × rhodostoma (Huttonii × sanguinolentum).

A distinct and handsome form of Cattleya Loddigesii is sent by Mr. E. Kromer, Roraima Nursery, Croydon, having both the front and side lobes of the lip much crisped, and prettily margined with rosy purple, the remainder being whitish yellow. The sepals and petals are light rosy purple in colour.

PAPHIOPEDILUM NIVEUM.

THE annexed illustration represents a beautiful little specimen of Paphiopedilum niveum from the collection of the Right Hon. J. Chamberlain, M.P., Highbury, Birmingham, and it shows what the species is capable of when well grown. The photograph was sent by Mr. Mackay, who must be congratulated on his success with it, for one seldom sees it in such robust health, and flowering so profusely as in the present example. We do not know the number of blooms borne by the plant, but there appears to be over a dozen scapes, and some of them are evidently twin-flowered. It would be interesting to know a little more about the conditions under which it was grown. The species was described by

FIG 44. PAPHIOPEDILUM NIVEUM.

Reichenbach in 1869, under the name of Cypripedium niveum (*Gard. Chron.* 1869, p. 1038), and Messrs. Veitch remark that its first appearance was an agreeable surprise. In 1868 they received from Moulmein a consignment of plants, supposed to be C. concolor, but on flowering in the following spring they proved to be a new species. As there is no evidence of its being a native of Moulmein, it is supposed that the plants were collected in the Langkawi Islands, where Förstermann afterwards found it, when collecting for Messrs. Sander. There it is said to be found growing on limestone mountains, generally on the western sides, where it is not much exposed to the sun; often in the crevices of the sloping

rocks, but seldom on the perpendicular escarpments like many other Cypripedes." It also occurs on the Tambilan Islands, between Singapore and Sarawak. A note on the culture of this beautiful plant is given in our seventh volume (pp. 145, 146) by O. O. Wrigley, Esq., who is very successful in cultivating it.

CALENDAR OF OPERATIONS FOR SEPTEMBER.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

THE advent of September is generally considered by Orchid cultivators as the commencement of what is termed the resting period, and therefore the aim should be now to give the plants every assistance to thoroughly ripen and consolidate their growths, so as to prepare them to pass safely through the coming winter. As the season advances it will be necessary to gradually expose the collection as a whole to extra sunlight, and at the same time, on every favourable opportunity, a free circulation of air should be encouraged. The blinds on the north side of the houses will scarcely be required at all (as, indeed, they have been used here very little of late), while those facing south need not be let down so early in the day, and must, of course, be drawn up sooner in the afternoon, while in a very short time they may be dispensed with altogether. It is important at the same time that discrimination should be used in this matter of reducing the amount of shading, as there are certain plants that are liable to serious injury if exposed to extra sunlight, as, for instance, Phalænopsis, Masdevallias, and Odontoglossums.

The atmosphere being cooler and moister at this time, considerably less damping will be needed, and the plants will require water less often at the root. During the present month, unless a considerable amount of fire-heat is requisite to keep up the temperature—which was the case last month—the East Indian and Cattleya divisions may be moderately damped down, both morning and evening. Immediately the houses are damped down start the fires gently, so that, if required, enough fire-heat may be at command to prevent the temperatures from falling too low during the night. The thermometer in the Warm house by the morning should be at about 68°, and in the Cattleya or Intermediate house at 65°. In the Cool houses, if properly attended to in the matter of ventilation, damping down, and shading, the temperature will be a few degrees below the external air.

Continue potting and top-dressing the Odontoglossums as they reach the stage suitable for that operation. In addition to O. crispum, such species as O. Hallii, triumphans, tripudians, and those of the luteopurpureum section, with the natural hybrids O. × elegans, × excellens, &c., will all need attention sooner or later. Also O. cordatum and maculatum, Oncidium

olivaceum, Phalænopsis, andnubigenum are commencing to grow, and should, so soon as they have made sufficient progress to suggest the early appearance of roots, be given fresh rooting material, and shortly afterwards a more liberal supply of water.

The Pleiones have now about completed their growth for the season, and the leaves which are deciduous will soon fall away. With this in view, much less water should be given, though, until the flowers appear, the compost should not become dust dry. There is with these practically no resting period, for almost before the old leaves have disappeared, the young growths, in which the flower scapes come up, make their appearance; hence growth in some shape or form is always in progress. P. humilis is only commencing to make up its growth, and should be given a fair supply of water.

The magnificent and floriferous Dendrobium Phalænopsis is now about to flower on this season's growths, and everything should be done to get these well developed. A fair amount of water will still be required until the flowers are over, when the commencement of a long and complete rest should begin. No shading will be required for these plants now, nor in fact any of the Dendrobes, except it be for an hour or so during the hottest part of the day in the early part of the month. With the above are associated the variety Statterianum and the allied D. bigibbum. The grand white-flowering D. formosum giganteum is also producing its blooms on the early-made bulbs, and should be treated like the forementioned: those not in such a forward state must, however, be more plentifully supplied with water. D. densiflorum, thyrsiflorum, and Farmeri should, as they finish up their bulbs, be removed to a light and airy position in the Cattleya or similar house.

The gorgeously coloured and much sought-for Cattleya Dowiana aurea comes into bloom this month, and where there is a good number of these plants a succession is kept for some few weeks. Repotting or topdressing may be done soon after the plants have gone out of bloom, as it is then that new roots emerge from the base of the last-made bulbs. Very careful treatment is needed after root disturbance, especially so far as watering is concerned, an overdose at this time often proving fatal to the plants' existence. A secondary growth will often make its appearance at this season, or a little later on, and to hasten its development, and to insure its maturing before the winter sets in, plants in this condition should be given the most favourable position in the Warm house until these latter have developed. Lælia crispa, having flowered during the past month, will shortly commence to grow again, but very little difference in the treatment will be needed to that in force previously. Should any of the plants be forward enough to repot, it should be done as advised for other Lælias and Cattleyas.

Phalænopsis amabilis, Aphrodite, Schilleriana, Stuartiana, Sanderiana, and × leucorrhoda make more apparent progress during this month than at any other time, and as the appearance, as well as the life of the plants depends chiefly on the leaf production, every care and known device should be resorted to that will give the leaves a chance of becoming thoroughly matured. The air of the house should be changed as frequently as possible, consistent with keeping the temperature right and the atmosphere humid, whilst the shading should only be employed when absolutely necessary to break the strength of the sun's rays, so that the newly made leaves may acquire a solidity of texture necessary for them to resist the changes and fluctuations of light and heat during the long winter months. Where the moss has grown long and thick it is preferable to pull this away rather than let it remain to hold a large quantity of water round the base of the plant. When a large amount of moss has accumulated it is very apt to mislead one as to the state of the same, the tips becoming dry if not continually saturated, whilst the moss below is still full of moisture. Decaying moss is also injurious, and any plants that have moss in this state should have it removed and replaced with new. The baskets should only be dipped when the moss has reached a state of dryness, and if any watering be done previous to this it should be only the crocks and base of the receptacles. Keep the leaves sponged with tepid rain water frequently, so that the leaves are kept freed from dust, &c., and thus give them a chance to do their work properly The following are more or less in a state of activity and should be treated accordingly:—P. violacea, speciosa, Lueddemanniana, Boxallii, cornu-cervi, and others. These require slightly more shade and moisture than the first named section, although if other conditions are not right, such as air and temperature, it is a very easy matter to give them too much of the former, The pretty P. Esmeralda is now in bloom, and will not need much water after the spikes are cut off, as the moisture of the house will satisfy the needs of this to a great extent.

The flower spikes of several autumn-blooming Oncidiums, such as O. crispum, varicosum, Forbesii, and tigrinum, are now rapidly developing. If any of these have been growing in the Cool house, and are by any reason late in growth, they will be better if assisted forward, by placing them in the Intermediate house. The early part of November is quite late enough for these to open, and any not likely to bloom by then should receive this assistance. Keep the young spikes free from thrip by taking the necessary precaution.

Such miscellaneous species as Mormodes, Catasetums, Cycnoches, Coryanthes, Chysis, Cyrtopodiums, and Thunias, as they complete their growth, should be thoroughly well rested by placing them in the lightest and driest part of the Cattleya or Mexican houses.

ORCHID HYBRIDISATION.

(*Continued from page* 254.)

A GOOD deal might be written as to the selection of parents, but in many small collections there is not always a wealth of material to choose from, and one has to make such crosses as are available at the time. And it may be added that most of the popular species which flower together have already been crossed in some of the numerous establishments which are more or less devoted to hybridising. Again, certain crosses are not worth making from a purely commercial standpoint. It has sometimes been said that a hybrid is two good species spoilt, and though the statement, like many other generalisations, is far too sweeping, there are cases which would justify it.

For example, Paphiopedilum barbatum and P. Spicerianum are both handsome things, with a good deal of character of their own, but when crossed together they yield a hybrid which can hardly be called attractive, namely P. × Eyermanianum. The characters of the two parents are so diverse that they seem to neutralise each other. A similar remark would apply to P. insigne and barbatum, for many forms of P. × Ashburtonæ are very inferior from a decorative standpoint, though vigorous and floriferous enough. But the intercrossing of P. insigne and P. Spicerianum has yielded one of the most useful decorative plants which has yet been raised, namely P. × Leeanum, and we immediately note that the characters of the two parents are not such as might be expected to neutralise each other.

Of course one cannot always foresee what the result of a given cross will be, but it is generally possible to form a sort of rough idea, especially at the present day, when the results of so many experiments are already known. It is true that certain apparently promising crosses have proved disappointing for some reason or other, and that others have yielded better results than was anticipated, but the existing records may be utilised by the hybridist as a guide for future experiments.

Some crosses might be repeated with advantage, using the very best forms of the species that could be obtained, and thus affording an opportunity for the production of superior varieties. Especially is this the case with hybrids that are not easily propagated, some of which remain rare. It is becoming increasingly difficult to break new ground in certain groups, so that the hybridist should be prepared to utilise whatever opportunities present themselves, if they appear sufficiently promising. In one way, however, the work will always be progressive, for the hybrids themselves may often be utilised as parents, and here a very promising field for future work presents itself, especially if combined with judicious selection. In this way the beginner may avail himself of the work of his predecessors. Of

course hybrids would not be used as seed parents until they have become strong, though the pollen of any promising thing may be tried immediately if it should appear healthy, which, however, is not always the case, and it is a well known fact that the pollen of certain hybrids is nearly always imperfectly developed and impotent, so that one must be prepared for a good many failures.

If two species happen to be in flower which it is thought desirable to cross, the strongest and best established should generally be used as the seed parent, but if both are equally strong it is a good plan to make the cross both ways, which is very easily affected. Remove the pollen from one flower and lay it carefully aside, then take the pollen from the second species and apply it carefully to the stigma of the first flower, making sure that it is the right place and adheres properly. This being done the pollen of the first flower is applied to the stigma of the second. A tiny ticket bearing a number should now be attached to the base of the pedicel of each flower, and corresponding numbers should be entered in a book giving particulars of each cross, with date and any other particulars which it may be desirable to note. Seed-bearing, it must be remembered, exerts a considerable strain on the plant, and weak plants may collapse, or require a considerable time to recover, so that weak plants and rare or choice varieties should only be used as pollen parents.

It sometimes happens that two species which it may be desirable to cross do not flower quite together, and in some cases it may be possible to retard one of them a little without injury, by placing it for some time beforehand in a slightly cooler house or position. Not much however can be done in this way, but when, as sometimes happens, a flower of some choice thing appears out of season, the opportunity of making a promising cross which is seldom possible should be taken. And a fact not generally known we believe is that pollen may be kept fresh for a time in hermetically sealed tubes, and thus be used long after it would have decayed if left on the plant. We hope to receive particulars of this method shortly.

(To be continued.)

THE GENUS CAMPYLOCENTRUM.

A SPECIES of Campylocentrum has been described which was not included in my notes on the genus at pp. 245-247. It is as follows :—

C. KUNTZEI (Cogn. in *O. Kuntze Revis. Gen. Plant.*, iii., pt. 2, p. 298.)—A Bolivian species, collected by M. Otto Kuntze, at Rio Juntas, at 500 metres elevation. The affinity is not stated, but it is probably allied to C. micranthum. It has elongated, much compressed stems; oblong, obliquely bidentate leaves, six to eight cm. long, and racemes rather shorter than the leaves.

R. A. ROLFE.

RHYNCHOSTYLIS RETUSA VAR. HEATHII.

A VERY beautiful albino of Rhynchostylis retusa appeared a few years ago, about which very little has been heard for some time, and it is interesting to note that more plants of it have been discovered. The earliest record that we know of appeared in 1885, when it was described under the name of Saccolabium Heathii (*Gard. Chron.*, 1885, ii, p. 369), as follows :—

"SACCOLABIUM HEATHII.—We have received a white bloom of a Saccolabium under the above name, which appears to be a variety of S. Blumei. The colour is a pure white, and the spike, as seen in an accompanying photograph, of great length. It will be a welcome addition to the genus."

On August 9th, 1887, it appeared at a meeting of the R.H.S., from the collection of Baron Schröder, among whose exhibits was "a cut spike 10 inches long of Saccolabium Heathii, a lovely pure white spike of bloom identical in size with that of S. Blumei as usually seen." (*Gard. Chron.*, 1887, ii, p. 200). And it is added :—"It will become popular in time."

In May 1887, it is said that a plant of it was sold for 150 guineas (Watson, *Orchids*, ed. i, p. 443). In the recent edition of the work, by Mr. Chapman, we fail to find even a mention of the plant, and the same remark applies to both Veitch's and Williams *Manuals*, from which it may be inferred that the variety is extremely rare, if not quite lost sight of. It is therefore the more interesting to find that Mr. Rimestad, of Malang, Java, has found several more plants of it, while engaged in an unsuccessful search for a white variety of Vanda suavis. Finding a single plant of a white variety among an abundance of the typical form, he continued to search right through the flowering season, with the result that several more plants were found, after which the search had to be abandoned, as the albino cannot be distinguished when out of flower. Next year the search was continued over a large area, and three additional plants only were found, and it is evident that the variety is rare, as in the case of albinos generally.

The rediscovery of the variety is interesting, and plants may be expected in Europe in due time. Rhynchostylis retusa is more commonly known in cultivation under the name of Saccolabium Blumei, and is one of the most beautiful species of the group to which it belongs, and the effect of a pure white variety like the specimen already figured (*Orch. Rev.*, ix, p. 281) can easily be imagined. It is one of the most widely diffused of Indian epiphytal Orchids, and less variable than might be expected, and the three species recognised by Lindley, namely, Saccolabium Blumei, S. guttatum, and S. præmorsum, are now by common consent regarded as forms of a single one.

R. A. R.

THE GENUS CHLORÆA.

WITH respect to the conditions under which these remarkable plants grow, and to which allusion was made at page 133, some interesting information is given in the *Botanical Magazine*, where C. longibracteata has just been figured (t. 7909):—"At Mr. Burbidge's request, Mr. Warburton furnished the following particulars of the conditions under which Chloræa longibracteata grows wild:—'Unless I confuse two kinds of Orchids, it is the commonest Orchid I found. The ground rises very rapidly from the sea shore, and is much broken into glens (quebrada) full of scrub and very rocky. The ground is all granite or granitic, and the surface much decomposed. Here and there you come across little plateaux among the rough slopes and rising ground, with very little soil on them, formed of disintegrated granite, clay, and gravel. These plateaux usually have a very spare vegetation upon them, consisting of bulbous plants, Orchids, a little grass, &c. Near the tops and on the tops grow what my friends and I call the green Orchis in hundreds. It always seemed to us that they grew in what were about the driest places possible, where the ground was so hard that it was difficult to dig them up with a garden trowel.' Mr. Warburton goes on to say that this Orchid, and other less abundant species, were usually of stunted dwarf growth, owing to the great dryness of the soil, and the cultivated plants were much more vigorous. Evidently, then, this is one of the numerous instances in which plants are not found growing naturally where the conditions are most favourable to full development."

It may be added that the genus is a large one, ranging from South Brazil to South Patagonia, and it is not at all likely that the whole of them grow under identical conditions.

LÆLIA × AMŒNA (L. Dayana × L. anceps Stella). Two plants of this hybrid, raised in the collection of E. V. R. Thayer, Esq., S. Lancaster, Mass., by Mr. E. O. Orpet, were exhibited at a meeting of the Massachussetts Horticultural Society on August 30th, 1902. They are described as of "widely different colouring, one being remarkable for its deep purple-crimson throughout the whole flower, while in the other form this rich colouring was only present in the lip, making a pleasing contrast to the lighter rose sepals. It is a plant that shows the L. anceps plainly in the growth, but the flower stem is reduced from that of the length of L anceps to a height of about 12 inches, while Lælia Dayana leaves its impress plainly in the rich colouring of the lip, which also has the raised deep purple lines of L. Dayana."—*Trans. Mass. Hort. Soc.*, 1903, p. 150.

PAPHIOPEDILUM GODEFROYÆ LEUCOCHILUM.

THIS charming little plant is grown with great success in the collection of R. I. Measures, Esq., Cambridge Lodge, Camberwell, by Mr. Smith, who has kindly sent us the photograph here reproduced, representing a group of plants which flowered there during the present summer. It is interesting to see the considerable range of variation, and it may be added that in a few cases the lip is more or less dotted with purple, a character more distinct in the original photograph than in the illustration. It may be remembered that a figure of a plant in the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, appeared at page 145 of our second volume, when a note on its culture was given. Comparatively little is known as to the exact

FIG. 45. PAPHIOPEDILUM GODEFROYÆ LEUCOCHILUM.

history of the plant, though the question of its origin has been pretty fully discussed (*O. R.*, v., pp. 231-233), when the conclusion was arrived at that it was probably a natural hybrid. But the point has not yet been fully cleared up. It would be interesting to compare the hybrids of this group which have been raised in cultivation with some of the wild forms to see how far the characters correspond, and also to have clearer evidence of the parent species growing together than we have at present. Will not some of our collectors come forward and throw some light on the question? The original habitat of P. Godefroyæ was given as the cliff of a limestone island near the Bird's-Nest Islands of Champon.

CATTLEYA × LUCIENIANA.

AT the Royal Horticultural Society's meeting held on August 18th, a handsome Cattleya was exhibited by Messrs. Stanley Ashton & Co., of Southgate, as a supposed natural hybrid between C. Harrisoniana and C. Schilleriana. It came home in an importation of the former, and bears a considerable resemblance to it, but the petals are very distinctly undulate, and there are other modifications, which no doubt suggested the idea of its being a natural hybrid. The lip has the characteristic Harrisoniana corrugations on the disc, and the reddish veining on the interior of the side lobes, while the front lobe is very prettily crisped. The sepals and petals are bright rose-purple in colour, the side lobes of the lip rosy lilac, and the front lobe rose-purple. It is not any of the well-known natural hybrids, but I strongly suspect that it may belong to the long-lost C. × Lucieniana, Rchb. f., which I have never been able to identify. This plant was described as long ago as 1885, as follows :—

"A lovely Cattleya, with the bulbs and leaves of C. Harrisoniana, and a flower much like that of C. Isabellæ, Rchb. f., but much darker and richer in colour. The rather narrow sepals and petals are of a fine brown, most beautifully enlivened by a wash of purple. The lip is trifid. Its side laciniæ are blunt, triangular, the mid laciniæ cuneate, cordate, emarginate, of the richest purple, the disc between the side laciniæ having red keels. The side laciniæ are pale yellow, with thick reddish veins. Column white, with purple lines on side, and numerous small points of purple. The front side of the column is whitish yellow at the base, with numerous purple lines around the border of the fovea. One might take it for a dark C. Isabellæ, and so I did at first sight ; the lip, however, has the anterior lacinia granulate, and the inner base of the column is broken up into keels. There can be no doubt its parents are Cattleya Forbesii and guttata or granulosa. It is dedicated with pleasure to M. Lucien Linden, who kindly sent it to me." —*Gard. Chron.*, 1885, ii, p. 456.

On comparing the living flower with this description two or three very strong resemblances are seen, but especially the combination of the rich purple coloration with the remarkable reddish thickened veins of the lip on a light yellow ground. This character of the veiningof the lip is, among the species, limited to C. Harrisoniana and C. Forbesii, of which the former alone is purple. For this reason I do not think Reichenbach's suggestion of the parentage is correct. C. Forbesii crossed with either C. guttata or C. granulosa would not yield a richly coloured hybrid. Nor can I think that C. Schilleriana was one of the parents, for so far as our present knowledge extends it grows far away from C. Harrisoniana, which was evidently one parent of the plant exhibited. I should think C. Leopoldi a far more

likely second parent, for such a cross would account for the characters above pointed out. As a matter of fact the plant exhibited bears a considerable resemblance to C. × Patrocinii (C. Leopoldi × C. Loddigesii), but the characteristic veining of the lip completely excludes it. Hybridists should take an opportunity of making the cross suggested, and let us know the result. The recovery of a lost plant is always interesting, and although one cannot be quite certain from the description only, I cannot help thinking that the two plants mentioned above are forms of the same hybrid. It would be interesting to know what has become of the original C. × Lucieniana.

R. A. ROLFE.

RODRIGUEZIA BATEMANII.

AT the meeting of the R.H.S. held at the Drill Hall, Westminster, on August 18th last, a handsome species of Rodriguezia was exhibited by Messrs. Charlesworth & Co., under the provisional name of R. grandis. It had a raceme of large flowers, much resembling those of R. candida in size and shape, but lilac in colour, and the segments longitudinally striped with purple. A comparison of materials sent to Kew by Messrs. Charlesworth shows that it belongs to the very rare R. Batemanii, a species almost unknown to modern horticulture. It was figured and described in 1835 (*Pöpp. et Endl., Nov. Gen. et Sp.*, i, p. 41, t. 70), from Peruvian specimens collected by Pöppig in 1830. Lindley afterwards changed the name to Burlingtonia rubescens (*Bot. Reg.*, 1837, sub. t., 1927).

It appeared in cultivation in 1866, when Reichenbach noted it as follows:—"Thirty-six years after its first discovery, we are happy to have this plant in our stoves, thanks to Mr. Linden. We owe the possession of flowers to him, and have others before us raised in the collection of the Lord Bishop of Winchester, under the care of Mr. Lawrence" (*Gard. Chron.*, 1866, p. 1042). It also flowered in the collection of W. Wilson Saunders, Esq., of Reigate, and was figured in the *Refugium Botanicum* (ii, t. 128), when its history was thus given by Reichenbach:—"It was in 1830 that the late Prof. Pöppig discovered this graceful plant, near Maynas, in Peru, growing on calabash trees; coming home in 1833 so exhausted that he seemed to have but a few months to live, he was appointed to Leipsic; there, having enjoyed the visit of young Bateman, who, no doubt, knew Orchids better than he, he dedicated the plant to the young English traveller. . . . There is, however, no great hope of keeping the plant long in gardens."

The latter remark proved prophetic, and so little is the plant known that I had not previously seen even a dried flower. Lindley only knew it from the original description and figure. It is a handsome species, and it is to be hoped that it will not again be so completely lost sight of.

R. A. ROLFE.

MEGACLINIUM PLATYRHACHIS.

THIS very remarkable species has now appeared in cultivation, a plant sent from Zomba, which has just flowered at Kew, proving identical with the original dried specimen from which the species was described (Rolfe in *Fl. Trop. Afr.* vii., p. 43). The original specimen, by the way, was very imperfect, and the description can now be supplemented in several particulars. The pseudo-bulbs are oblong, hexangular, somewhat compressed, 2 to 2½ inches long by 7 to 9 lines broad, and diphyllous. The leaves are oblong, coriaceous, and 3 to 4 inches long by 1¼ inches broad. The inflorescence is very remarkable, the flattened rachis being from 10 to 16 lines broad, ultimately attaining a length of 9 to 10 inches, and bearing about fifty flowers on each side. It is crenulate and undulate at the margin, and the colour is light yellowish green, with innumerable whitish and dusky brown dots. The flowers are from two to three lines apart, and the colour greenish, dotted and speckled with dark brown. The lip is fimbriate at the base, and the petals falcate-lanceolate, which places it next to M. Imschootianum, Rolfe, in the systematic arrangement. Its affinity was previously doubtful. The rachis of this genus is a remarkable production, the wing-like extension continuing to develop as the inflorescence elongates, and the flowers follow on in succession. Thus there is a steady development of the wings upward, and a constant succession of flowers, as the rachis gradually elongates. The use of this wing-like extension is not known, but it may possibly help to render the inflorescence more conspicuous.

R. A. R.

DENDROBIUM × STATTERIANUM.

A COMPARISON of a living flower of the plant known as Dendrobium Phalænopsis var. Statterianum with those of the typical form and of D. bigibbum, from the collection of J. J. Neale, Esq., of Penarth, again raises the question of what is the exact rank of the former. It appeared in 1889, in the establishment of Messrs. F. Sander & Co., at St. Albans, among an importation of the typical form, and was figured and described in *Reichenbachia* (ser. 2, i, p. 15, t. 7). It was said to have rather smaller and

darker flowers than the typical form, with a more obtuse lip, and was dedicated to T. Statter, Esq., as a variety of D. Phalænopsis. Other plants have subsequently appeared, possessing the same essential features. I had previously noticed a resemblance to D. bigibbum, and a comparison of the three forms mentioned suggests the probability that the so-called variety is a natural hybrid between the other two, just as D. × Leeanum, which also comes in importations of D. Phalænopsis, is a natural hybrid between that species and D. superbiens. The persistently smaller flowers, more recurved petals, and darker colour, all show a strong approach to D. bigibbum, though the elliptical patch of whitish hairs on the centre of the lip of the latter is not distinctly traceable. But the flower of the so-called variety is so generally intermediate between the two species mentioned that I think it must be a natural hybrid between them. It would be interesting to have further evidence on the subject, and to see the result of hybridising the two species together.

R. A. ROLFE.

RARE ORCHIDS AT KEW.

SEVERAL very interesting rarities are now flowering at Kew. Dipodium pictum is producing another spike in one of the warm houses, where also may be seen a fine plant of the remarkable Bulbophyllum grandiflorum bearing seven flowers, the rare B. mandibulare, the curious little B. saltatorium, with a feathery lip, like a miniature B. barbigerum, the striking Trias disciflora, Saccolabium penangianum, and Liparis disticha, the red flowers of the latter being rather unusual in the genus. Phalænopsis Esmeralda is represented by five flowering plants; and a pan of Habenaria carnea, containing several plants, is very effective. Among plants which cannot be called rare may be mentioned Paphiopedilum Charlesworthii, P. Spicerianum, P. × Maynardii, Phragmopedilum × Sedeni, and P. × calurum, all of which are flowering freely and are very effective.

In the Cool House is a good pan of the chaste Stenoglottis longifolia alba, bearing several spikes, and a mass of the typical form, which is a really effective autumn-flowering Orchid, being easily grown, and one can always rely upon its flowering freely at this season. A plant of Epidendrum vitellinum with five racemes of its brilliant flowers is also very effective, other interesting things being a good plant of Odontoglossum aspirrhinum with six spikes, Oncidium exasperatum, Ionopsis paniculata, several interesting Masdevallias, and the rare Restrepia trichoglossa.

In another warm house Neobenthamia gracilis is carrying four racemes of flowers, other interesting things being Dendrobium Aphrodite, a pale form

of D. sanguinolentum, a good plant of Cœlogyne Sanderiana, and an inflorescence of Catasetum Naso.

Among showier things may be mentioned a nice lot of Dendrobium Phalænopsis, D. formosum, Lælia crispa, Lælio-cattleya × Nysa, Vanda Kimballiana, Cattleya Loddigesii, C. Aclandiæ, C. Eldorado Wallisii, Miltonias, &c., which collectively make a fine show.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, during September, on the 1st and 15th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will hold a meeting at the Coal Exchange, Manchester, on September 11th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 3 p.m.

A group of four Cypripedium Fairrieanum hybrids, from the collection of N. C. Cookson, Esq., Oakwood, Wylam-on-Tyne, is illustrated in the *Gardening World* for August 8th (page 682). They are C. × vexillarium, C. × Juno, C. × Edwardi, and C. × vexill-Io. The photograph was taken last autumn by Mr. Chapman, when five plants were in flower, but it is not stated which is which. One plant, it may be noted, is also bearing a seed-pod.

CATTLEYA WARNERI ALBA.—*Indian Gardening* for July 25th speaks of this beautiful plant as follows:—"A 1000 Guinea Orchid.—At the Exhibition of the Royal Horticultural Society held last week in the delightful grounds of Holland House, the London residence of the Earl and Countess of Ilchester, M. A. A. Peeters, of Brussels, exhibited a splendid plant of Cattleya Warneri alba, bearing five flowers upon one raceme. They were very beautiful, pure white with yellow throat. M. Peeters asked 1,000 guineas for this rare Orchid, and considering the exceptionally fine specimen, this seemed none too much, especially as there is a boom in Orchids now."

According to the Report of the Travancore Public Gardens, by Mr. H. S. Ferguson, F.L.S., Orchids are very successfully cultivated at Trivandrum, South India, and it is said that year after year a greater number and more varieties of these plants come into flower, among those

mentioned as following during 1902 being several Cattleyas and the Dove Orchid, Peristeria elata.

THE "BULL-DOG ORCHID."—We thought that Oncidium Papilio and the allied O. Kramerianum were popularly known as Butterfly Orchids. But the *Gardening World*, in figuring the latter, in a recent issue, remarks of it as follows:—In the North this species is popularly known as the "Bull-Dog Orchid," from the fact that the crest of the lip resembles more or less clearly the face of that animal. Not all are exactly alike, but the face-like appearance is often very striking and evident."

ODONTOGLOSSUM MIDGLEYANUM, is said to be a plant from the collection of H. H. Hunnewell, Esq., to which a Silver Medal was given by the Massachussetts Horticultural Society in 1902, but there is not the slightest clue as to what it is (*Trans. Mass. Hort. Soc.*, 1903, p. 144). We should be obliged for any information which would enable the question to be cleared up.

Photographs of a handsome form of Paphiopedilum × Rolfei are sent from the collection of W. M. Appleton, Esq., of Weston-super-Mare, being the finest form which has yet flowered. Mr. Appleton remarks:—"I made the cross both ways; in April, 1894, bellatulum × Rothschildianum, and in February, 1895, Rothschildianum × bellatulum. The former cross I have not yet succeeded in flowering, as the plants grow and keep throwing young growths but no flowers: but the latter, with Rothschildianum as the seed parent, make much stronger growths and flowers all right." It is a very handsome form, the plant bearing two scapes, one being twin-flowered, and it is interesting to have the exact history.

A curious hybrid Cattleya was exhibited at the R. H. S. meeting on August 18th by Messrs. Stanley Ashton and Co., of Southgate, as a hybrid between C. bicolor and C. Rex. It most resembled the former in shape, except in having small side lobes to the lip, about half as long as the column. The sepals and petals, however, were less fleshy, the latter broadened at the apex, and all light purple in colour, while the lip was lilac, with some darker veining.

A very pretty form of Odontoglossum × Adrianæ is sent from the collection of R. Ashworth, Esq., Newchurch, Manchester, by Mr. Pidsley, having clear bright yellow flowers, and only a few small brown spots on the sepals. It was imported among Odontoglossum crispum in 1899, and flowered last year for the first time.

ORCHID PORTRAITS.

ANGRÆCUM ROTHSCHILDIANUM, O'Brien.—*Gard. Chron.*, 1903, p. 131, fig. 51.

CATTLEYA × ATALANTA SUPERBA.—*Journ. Hort.*, 1903, ii, p. 189, with fig.

CATTLEYA MOSSIÆ.—*Garden*, 1903, ii, p. 137, with fig.

CATTLEYA REX.—*Journ. Hort.*, 1903, ii, p. 143, with fig.

CATTLEYA SKINNERI.—*Amer. Gard.*, 1903, p. 307, with fig.

CHLORÆA LONGIBRACTEATA, Lindl.—*Bot. Mag.*, t. 7909.

CYPRIPEDIUM × EDWARDI.—*Gard. World*, 1903, p. 682, with fig.

CYPRIPEDIUM × JUNO.—*Gard. World*, 1903, p. 682, with fig.

CYPRIPEDIUM × LEUCORRHODUM.—*Journ. Hort.*, 1903, p. 119, with fig.

CYPRIPEDIUM × ROLFEI.—*Gard. World.*, 1903, p. 732, with fig.

CYPRIPEDIUM × TRANSVAAL.—*Gard. World*, 1903, p. 731, with fig.

CYPRIPEDIUM × ULTOR.—*Garden*, 1903, ii., p. 155, with fig.

CYPRIPEDIUM × VEXILLARIUM.—*Gard. World*, 1903, p. 682, with fig.

CYPRIPEDIUM × VEXILL-IO.—*Gard. World*, 1903, p. 682, with fig.

DISA × CLIO.—*Garden*, 1903, ii, p. 99, with fig.

EPIDENDRUM VITELLINUM MAJUS.—*Gard. Mag.*, 1903, p. 413, with fig.

EULOPHIELLA PEETERSIANA.—*Gard. World*, 1903, pp. 656, 658, with fig.

LÆLIO-CATTLEYA × MARTINETII VAR. OCHRACEA.—*Gard. Mag.*, 1903, pp. 510, 511, with fig.

LÆLIO-CATTLEYA × MRS. LEEMANN.—*Gard. Mag.*, 1903, p. 529. with fig.

ODONTOGLOSSUM SCHLEIPERIANUM.—*Amer. Gard.*, 1903, p. 386, with fig.

ONCIDIUM KRAMERIANUM.—*Gard. World*, 1903, pp. 731, 738, with fig.

PHAIOCALANTHE × SEDENIANA.—*Journ. Hort.*, 1903, ii, p. 165, with fig.

VANDA TERES.—Rev. Hort. Belge, 1903, p. 209, fig. 32.

CORRESPONDENCE.

(Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.)

A.L.J. The flower is Odontoglossum × Coradinei, a natural hybrid between O. Lindleyanum and O. crispum, which is continually appearing unexpectedly in importations of the latter. It would be rather interesting to know what other things your "300 imported crispums" contain when they have all flowered.

J.S. Masdevallia Lowii is believed to be identical with M. trinema, and the latter is the older name.

W.C. The record probably belongs to Cattleya Loddigesii, not to C. Harrisoniana, the former being much the commoner plant in cultivation. Unfortunately the two names have been transposed in some collections, as we have had evidence on several occasions. If you can obtain a flower we can decide.

J.H. Odontoglossum Lindleyanum.

Photographs received, with thanks. W.M.A., J.M., J.S.

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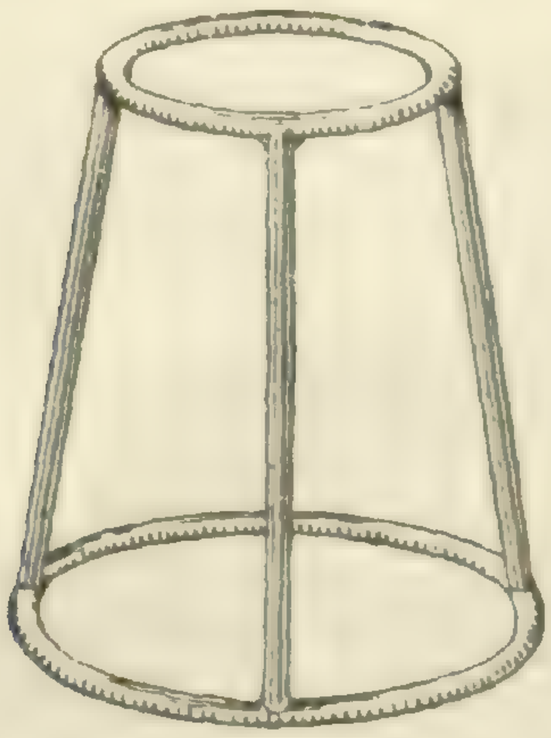

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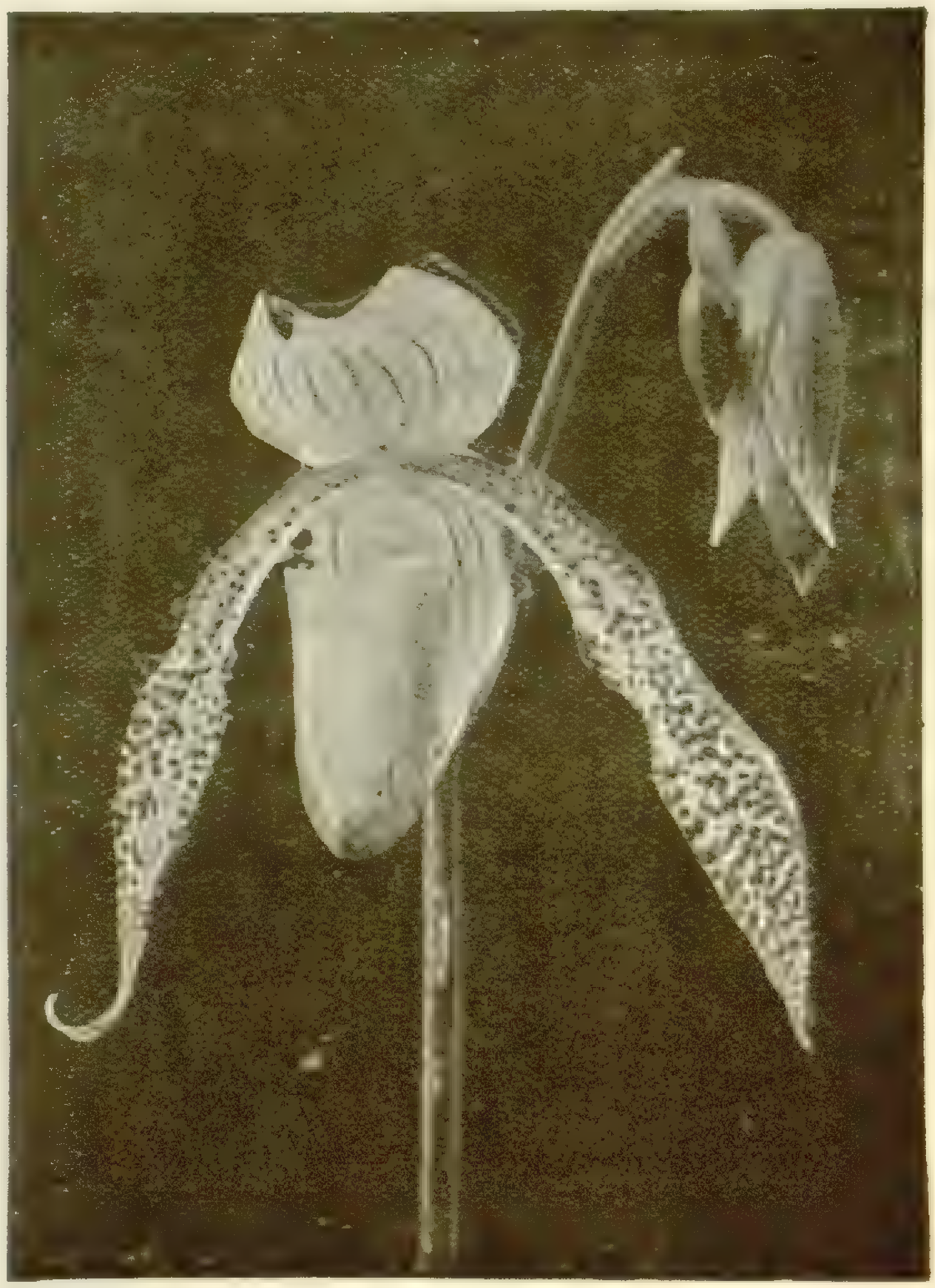

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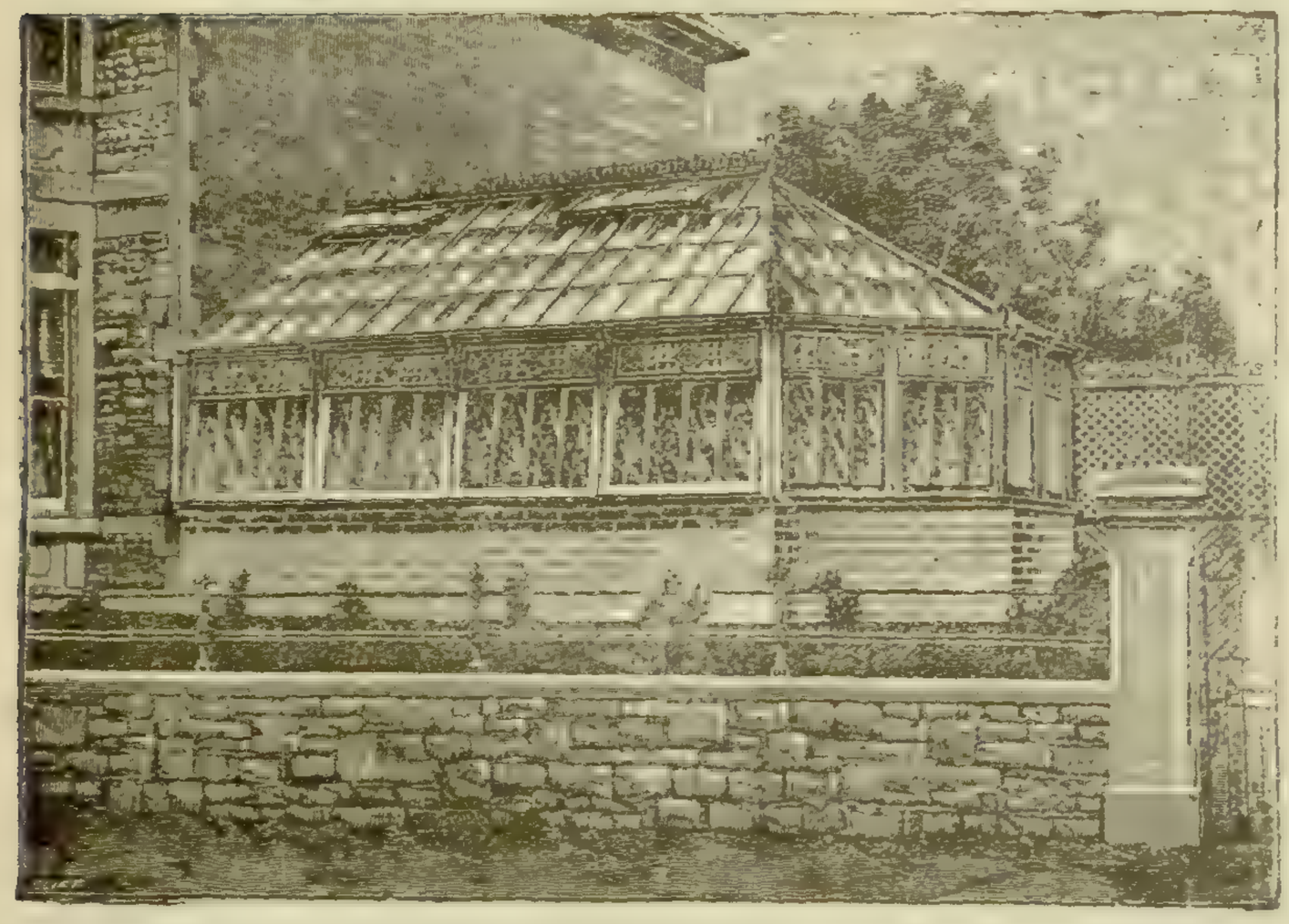

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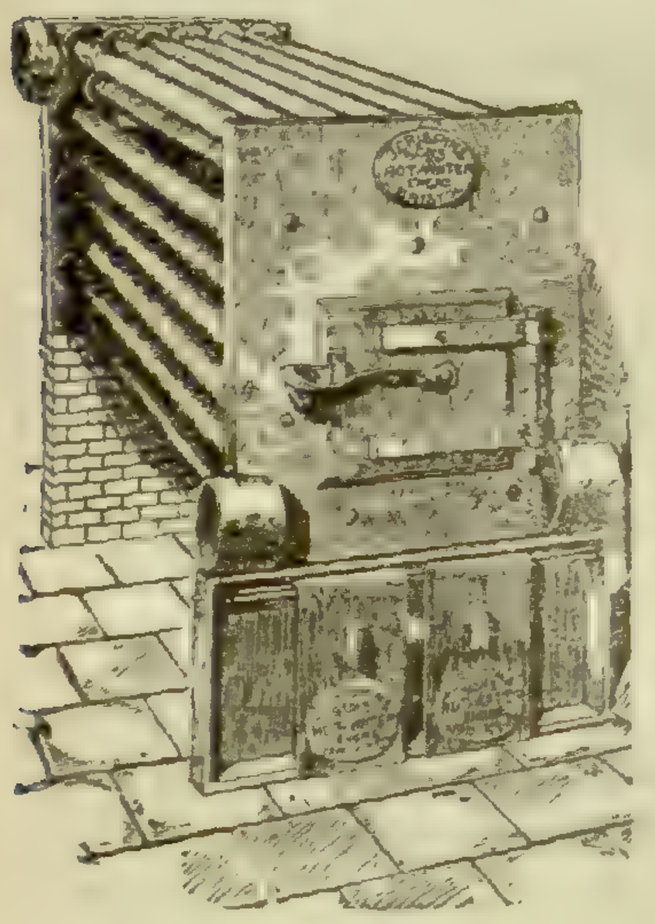

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THE GENUS PLEIONE.

THE Pleiones, or "Indian Crocuses" as they are often familiarly termed, form a charming little group of autumn and winter-flowering plants, which are now beginning to produce their annual display, and a few notes on the different species may prove acceptable.

The genus was established by Don, in 1825 (*Prodr. Fl. Nepal.*, p. 36), for the two now well-known species, P. præcox and P. humilis, which had previously been figured and described by Sir James Smith as species of Epidendrum (*Smith Exot. Bot.*, ii, tt. 97, 98). Soon afterwards Lindley reduced them to Cœlogyne (*Gen. and Sp. Orch.*, p. 43), where they have for the most part remained down to the present time. Lindley, however, wished to keep them apart, and in 1852 he again separated them, remarking:—"The habit of these plants is so peculiar that it seems desirable to separate them from Cœlogyne, if any character can be found, and we think the membranous bracts, and strongly saccate lips with fringed veins, of Pleione may be taken to offer a sufficient distinction (*Paxt. Fl. Gard.*, ii, pp. 65, 66)." Finally, however, he left them as a distinct section of Cœlogyne (*Fol. Orch. Cœlog.*, p. 14), though he added:—"There is something so peculiar in the plants called Pleione by Don that it would be desirable to find some means of separating them from Cœlogyne. At all events, Pleiones constitute a group which can never be intermingled with the species of Cœlogyne proper."

Certainly the two groups are very similar in floral structure, but there are several differences, notably, that the lip is quite different in shape and details; added to which there is the very differently shaped annual pseudobulbs, the thin deciduous leaves, and the peculiar inflorescence. In fact, the whole organisation is different, and the plants require quite different treatment. On the other hand, we find Pholidota, organised in precisely the same way as Cœlogyne, and with very slight floral differences, and Otochilus, slightly more distinct in floral structure, though not more so than Pleione, and yet both are recognised as distinct. In fact. Pleione is equally deserving of generic recognition, and the recent

discovery of several additional species in China only emphasises its essential distinctness.

The first species known in cultivation was P. præcox, which was collected by Gibson in the Khasia Hills, and sent to the Duke of Devonshire's collection at Chatsworth in 1837. P. lagenaria, P. humilis, and P. maculata were introduced by Thomas Lobb, who sent them to Messrs. James Veitch and Sons, then at Exeter, in 1849. P. Reichenbachiana was introduced by Col. Benson, in 1868, and P. Hookeriana by Mr. Elwes, in 1877. The two latter are now rarely met with in cultivation.

Their culture is now thoroughly understood, and has been frequently detailed, but it may be added that P. humilis and P. Hookeriana come from a rather higher, and P. maculata and P. Reichenbachiana from a rather lower, elevation than the others; hence the former should have slightly cooler, and the latter slightly warmer treatment, if possible.

The following is a brief outline of the cultivated species:—

P. PRÆCOX (*Don Prodr. Fl. Nepal.*, p. 37. Epidendrum præcox, *Sm. Exot. Bot.*, ii, t. 97. Cœlogyne præcox, *Lindl. Gen. and Sp. Orch.*, p. 49. P. Wallichiana, *Lindl.* in *Paxt. Fl. Gard.*, ii, p. 65. C. Wallichiana, *Lindl. Bot. Reg.*, 1840, t. 24; *Bot. Mag.*, t. 4496). Discovered by Dr. Francis Buchanan in Upper Nepal about a century ago, and first figured and described by Sir James Smith in 1805. It was introduced to cultivation by Gibson, who sent it to Chatsworth in 1837, and was at first thought to be distinct, and described under the name of Cœlogyne Wallichiana. It is common in Nepal, Sikkim, and Khasia, ranging from 5,000 to over 8,000 feet altitude. C. birmanica (Rchb. f. in *Gard. Chron.*, 1882, ii, p, 840), introduced from Burma by Messrs. Hugh Low & Co., through Mr. Boxall, is believed to be a form of the same.

P. LAGENARIA (Lindl. in *Paxt. Fl. Gard.*, ii, p. 5, t. 39, fig. 2; *Warn. Sel. Orch.*, i, t. 17. Cœlogyne lagenaria, *Lindl. Fol. Orch.*, Cœlog., p. 15; *Bot. Mag.*, t. 5370).—Discovered on the Khasia Hills by Thomas Lobb, who sent it to Messrs. James Veitch & Sons in 1849. Very little is known about its geographical range, but it is said to be restricted to two localities of very limited extent.

P. MACULATA (Lindl. in *Paxt. Fl. Gard.*, ii, p. 5, t. 39, fig. 1. Cœlogyne maculata, *Lindl. Gen. and Sp. Orch.*, p. 43; *Wall. Pl. Asiat Rar.*, i, p. 45, t. 53; *Bot. Mag.*, t. 4691).—Discovered in Nepal by Dr. Wallich, towards the end of the second decade of the last century, and introduced to cultivation by Messrs. James Veitch & Sons, through their collector, Thomas Lobb, who met with it on the Khasia Hills. It is also found in Sikkim. Its vertical range is between about 3,500 and 5,000 feet elevation. P. diphylla (Lindl. in *Paxt. Fl. Gard.*, ii, p. 66. Cœlogyne diphylla, *Lindl. Fol. Orch.*, Cœlog., p. 15) is believed to be synonymous, and

C. Arthuriana (Rchb. f. in *Gard. Chron.*, 1881, i. p. 40) is now considered a small-flowered variety of the species.

P. Reichenbachiana (T. Moore in *Will. Orch. Gr. Man.*, ed. 6, p. 551. Cœlogyne Reichenbachiana, Veitch and T. Moore in *Gard. Chron.*, 1868, p. 1210).—Discovered on the mountains near Moulmein at 6,000 to 7,000 feet elevation, by Col. Benson, who sent it in 1868 to Kew, and to Messrs. James Veitch & Sons. It flowers in February and March, but is very rarely seen in collections.

P. humilis (*Don Prodr. Fl. Nepal.*, p. 37; *Paxt. Fl. Gard.*, ii. p. 65, t. 51; *Orch. Alb.*, iii, t. 102. Epidendrum humile, *Sm. Exot. Bot.*, ii. t. 98. Cœlogyne humilis, *Lindl. Gen. and Sp. Orch.*, p. 43; *Bot. Mag.*, t. 5674). —Discovered by Dr. Francis Buchanan, in Upper Nepal, about a century ago, and first figured and described by Sir James Smith in 1805. It was introduced to cultivation by Thomas Lobb, who sent it from the Khasia Hills to Messrs. James Veitch & Sons, in 1849. It is also found in Sikkim and Bhotan, at about 7,000 to 8,000 feet elevation. The lip is very beautifully fringed, and the flowers vary somewhat in colour.

P. Hookeriana (T. Moore in *Will. Orch. Gr. Man.*, ed. 6, p. 548. Cœlogyne Hookeriana, *Lindl. Fol. Orch.*, Cœlog., p. 14; *Bot. Mag.*, t. 6388). —Discovered in 1849 by Sir J. D. Hooker in the Sikkim Himalayas, at 7,000 to 10,000 feet elevation, and introduced to cultivation by H. J. Elwes, Esq., in 1877. It is very rare in cultivation. At the higher elevations occurs a form with rather shorter lip, known as variety brachyglossa, which flowered in the collection of Sir Trevor Lawrence in 1887.

P. pogonioides (Cœlogyne pogonioides, Rolfe in *Kew Bull.*, 1896, p. 196) was recently introduced from China, by Messrs. James Veitch & Sons, through their collector, Mr. Wilson, but has not yet flowered in cultivation. The bulbs are said to be used as a drug by the Chinese, under the name of "*Pei-mu*." It is allied to P. humilis, and, like it, flowers when the leaves are partly developed. It seems to be common in the provinces of Hupeh, Szechuen, and Anwhei, and was known as early as 1885, when Dr. Hance briefly described it as Pogonia sp. (*Journ. Bot.*, 1885, p. 247). Dr. Henry describes the flowers as pink. Cœlogyne Henryi (Rolfe, *l.c.*, p. 195) is now believed to be a form of the same species.

There are four other Chinese species not yet introduced to cultivation, as follows:—

P. bulbocodioides (Cœlogyne bulbocodioides, *Franch. Pl. David.*, ii. p. 122), found in Eastern Thibet by the Abbé David, and Kweichau by Faurie. It is allied to P. pogonioides.

P. Delavayi (Cœlogyne Delavayi, Rolfe in *Kew Bull.*, 1896, p. 195), found in Yunnan by Delavay, and an ally of the preceding species.

P. grandiflora (Cœlogyne grandiflora, Rolfe in *Journ. Linn. Soc.*, xxxvi,

p. 22), collected in Yunnan by Dr. Henry, and apparently most allied to the Himalayan P. præcox. The flowers are said to be white.

P. YUNNANENSIS (Cœlogyne yunnanensis, Rolfe in *Journ. Linn. Soc.*, xxxvi, p. 23), collected in Yunnan, both by Hancock and Dr. Henry, and allied to P. Delavayi. The flowers are described as red to purple.

R. A. ROLFE.

STORING POLLEN.

REFERRING to your remarks on pollen keeping, at page 278, I have pleasure in giving you the results of my limited experiments in that direction.

I do all the hybridising here, and, to make the crosses I had set my mind on, I soon found I must get some method of storing pollen. I tried various means, and the one I have found most successful seems too simple to write about. It is to remove the pollen carefully from the flower; wrap in the *blue* tissue paper florists use; write name and date on, and put in a tin box. I was led to try the blue paper, after failure with other means, by remembering that that was used to preserve white materials from fading, and thought it might possibly answer my purpose, and preserve the pollen in some way. The following are the results of its use, taken from my record book:—

Cattleya citrina × Trianæ alba. Trianæ pollen removed January 16th; used April 25th (over three months).

Cattleya Trianæ × Lælio-cattleya × Charlesworthii. Pollen removed January 29th; used March 8th (about seven weeks, and hybrid pollen, too).

Lælia purpurata × Cattleya Percivaliana. Pollen removed March 27th; used June 13th (eleven weeks).

Cattleya amethystoglossa × C. Trianæ. Pollen removed February 24th; used April 16th (about seven weeks).

From all these crosses we have seedlings up, proving the pollen to have been sound when used. I also find the following:—

Cattleya Mossiæ × Lælia anceps. Pollen removed November 29th; used July 10th (about seven-and-a-half months). The flower faded naturally, and the pod formed, but, unfortunately, was knocked off.

Cattleya Mossiæ × C. Trianæ. Pollen removed February 26th; used July 10th (about five-and-a-half months). The pod formed all right, but I only let it go about half way, as it was only for an experiment, and the flowers were not good enough to raise from.

Brassavola Digbyana I have used successfully after six weeks, and Odontoglossums Pescatorei and crispum after three months; but Cattleya Dowiana aurea and Sophronitis grandiflora were useless after a very short time.

I might say, too, that in raising the plants true from seed, it is not wise to use a flower's own pollen, but rather to get it from another plant of the same variety. For instance, last November I fertilized two flowers of Cattleya labiata Amesiana, one with its own pollen, and one with labiata R. I. Measures variety. The former stayed on six months only, and on being sown proved all chaff; the other has gone on all right. Then Cattleya Trianæ alba, self-fertilised, burst at six months, and we fear there is little chance of the seed being good, while Cattleya Mossiæ Wageneri fertilised with its own pollen, though hanging throughout the year, was very bad seed, and we only got a few seedlings. At the same time I ought to say that Dendrobium nobile virginale, self-fertilised, resulted in a good pod of seed, and we got a good many seedlings up.

Of all the pollen we have used, too, taking it all round, I think that that of Brassavola Digbyana has proved the most vigorous. It gives splendid results: even when put on Cattleya Dowiana aurea we got a fine pod of seed, and aureas as a rule are very bad seed parents.

Emily Thwaites.

ORCHIDS IN A WEST INDIAN HURRICANE.

Orchid cultivators in the British Islands have various difficulties to contend against which their more favoured brethren in the tropics escape, but there are some compensating advantages, and among them may be included the freedom from cyclonic storms, one of which is very graphically described by "W. H., Jamaica," in a recent issue of the *Gardeners' Chronicle* (1903, ii, pp. 201-203). A hurricane of exceptional violence was experienced in Jamaica on August 11th last, which worked almost incalculable havoc to vegetation of all kinds, as well as to shipping and buildings of all kinds. The Hope Gardens presented a sorry spectacle after the storm, and the effect on the collection of Orchids is thus described:—

"The collection of imported Orchids growing on blocks and in baskets underneath the shade of the double row of Divi-Divi trees was sent flying in all directions, and the plants are terribly battered and bruised. This was one of the largest and most valuable collections of imported Orchids in the West Indies. It contained nearly all the best Cattleyas, Lælias, Oncidiums, Epidendrums, Dendrobiums, Aërides, Vandas, Phalænopsis, Stanhopeas, etc., many of which were obtained from various sources in exchange for Jamaican species. The collection has been roughly treated and much damaged, but the plants will recover, and they will again delight the numerous visitors who come to see them when they are in flower."

"LOST" ORCHIDS.

CATTLEYA × LUCIENIANA.

You ask, at page 283, what has become of the original Cattleya × Lucieniana? I think that it will be quite easy to trace it. I sold it in 1886, I think, to Messrs. Sander & Sons, of St. Albans, who should be able to give you the necessary information.

CATASETUM BUNGEROTHII AND ITS ALLIES.

With respect to plants which have disappeared, or supposed to have done so, I should be glad to know if there exists still in England plants of Catasetum Bungerothii from our original importation, also of the varieties Luciani, Lindeni, and imperiale, and again of the varieties of C. splendens? I have these now in flower, also C. splendens var. Aliciæ, with fourteen flowers on a spike, which is remarkable, and many other species and varieties I have grown for ten or fifteen years. I have also a plant of the marvellous variety imperiale in bud, which I intend to exhibit at one of the ensuing meetings in London.

Catasetums have the reputation of degenerating under European culture, but this is not absolutely the case. If properly cultivated they thrive as well as the majority of other Orchids.

L. LINDEN.

Brussels, September 11th, 1903.

ORCHIDS AT CLARE LAWN.

LAST autumn we gave an account of the experiments which were being made in the collection of Sir Frederick Wigan, Bart., Clare Lawn, East Sheen, in cultivating Orchids in leaf-compost (*Orch. Rev.*, x, pp. 357-360), and a few further notes on the subject may now be of interest, especially in view of a recent statement that unfavourable symptoms must sooner or later manifest themselves under this treatment. It was with a view of reporting progress that we called on Mr. Young in the spring, when we found everything as satisfactory as before, in consequence of which the treatment was being extended over a wider field. A few days ago we called again, and found evidence of further progress on every hand. Mr. Young is not at all apprehensive of the appearance of the predicted unfavourable symptoms, though he agreed that it was about time that some of them did put in an appearance, if they are to come at all. For example, Mr. Young pointed out some plants of Papiopedilum bellatulum which were potted into leaf compost three years ago, and have not been touched since; but the improvement that was at first noticed is completely maintained, and the plants are masses of healthy foliage, and as vigorous as the most exacting cultivator could wish for. In some cases plants in leaf compost were

growing side by side with others potted in the ordinary way, the treatment in other respects being identical. This is a practical test of the value of the two systems, and there can be no question of the marked improvement of those potted in the new compost. Indeed, Mr. Young states that some plants can now be grown satisfactorily which formerly were difficult to keep alive, and the reason probably is that the gradually decaying leaves afford a constant supply of food, which the roots are not slow to avail themselves of. The question of food supply is, of course, only one detail of Orchid culture, but temperatures, watering, and ventilation are equally well looked after, and the collection generally is in excellent condition.

In one of the Cattleya houses several fine things were in flower, including the handsome C. × Whitei magnifica, and, remarkably enough, for the second time this season. The plant was exhibited at the last Temple Show, and received a First-class Certificate. Shortly afterwards it produced a second growth, which is now complete, and carrying two fine flowers. Other interesting things were C. Warscewiczii, the handsome Lælio-cattleya × Violetta, L.-c. × Verelii, the pretty little L.-c. × Ira, L.-c. × Constance Wigan, in which the characters of L. xanthina and C. Rex are very prettily combined, and a good plant of Miltonia Clowesii.

In another Warm house we noted Cattleya superba bearing a fine six-flowered spike, C. Forbesii, several good Lælia pumila, the handsome Lælio-cattleya × bletchleyensis. some good Dendrobium Phalænopsis, Zygocolax × Amesianus with two spikes, Pachystoma Thomsoniana, the fine Zygopetalum × Rœblingianum, Cycnoches chlorochilon, the rare Paphinia cristata in bud, and several other good things. It was interesting to see the rare little Hemipilia calophylla, with green and brown mottled leaves, but the flowers were past. The fine Catasetum Bungerothii was also just over, and Mr. Young remarked that it improved greatly when potted in leaf-compost.

In the Phalænopsis house several very interesting things were noted, including Chondrorhyncha Chestertoni with three flowers, a species of the Bollea group in bud, Zygonisia × Rolfeana pushing up two spikes, Phalænopsis Aphrodite and P. violacea, Saccolabium calceolare, Paphiopedilum × Allanianum, P. × Pageanum, P. × politum, and several others. The handsome P. × Maynardii was represented by several plants bearing an aggregate of eleven flowers, and it was pointed out that one of them potted in leaf compost was more robust and had larger flowers than the others. The collection of Phalænopsis is in fine condition, and Mr. Young considers that those in leaf compost show an improvement over the others.

In the Rock house a fine plant of Cymbidium grandiflorum was pushing five spikes, and the natural hybrid C. × I'Ansoni was also showing for flower.

In the Cool houses we noted several fine things, including Zygopetalum maxillare Gautieri with four spikes, Maxillaria grandiflora alba, Oncidium incurvum, Cochlioda vulcanica, Odontoglossum madrense, a very fragrant and pretty species, and O. Uroskinneri with a spike of fourteen flowers, ten of which were fully expanded together. Several plants of O. × spectabile were showing for flower, one of them carrying an enormous branched spike. Mr. Young considers that the use of leaf compost has worked a great improvement in this department, and some of the plants showed remarkable vigour. We noted here, too, the curious old Epidendrum cochleatum, and some fine pans of Pleiones in bud. We also noted here that a number of the plants were elevated on wire stands, which Mr. Young considers a great improvement over the old system of using inverted pots, for not only is the free circulation of air not impeded, but the syringe can be freely used underneath the stands in a way that is impossible when solid pots are used. The improvement is obvious, for both methods are in use side by side.

In another house we noted Paphiopedilum Charlesworthii in flower, P. × Niobe and P. × Arthurianum just expanding, and some forms of P. insigne in bud, including Sanderæ and the fine Harefield Hall variety. Cymbidium × Wiganianum was producing a spike, and some interesting seedlings of this genus were also pointed out.

Various other interesting things were in flower, but the foregoing include the more noteworthy, and the collection promises a fine show of bloom in the coming autumn.

PAPHIOPEDILUMS AS CUT FLOWERS.

SOME of the Paphiopedilums are of great value as cut blooms, of which fact we have a striking example from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury. Mr. Rogers writes, under date of September 7th last, as follows :—"I am sending you a three-flowered spike of Cypripedium × callo-Rothschildianum, thinking it might interest you, as it was cut on August 7th for Mr. Wrigley to take with him to Windermere, when the third flower was a bud about the size of a damson. We think it rather remarkable that it should open, and the flowers last in such good condition for such a long time." The spike survived an additional journey, arriving in good condition, and remaining fresh for several days longer. It is an exceedingly handsome specimen, and the two lower flowers are splendidly developed, the upper, as might be expected, being somewhat smaller, but it is somewhat surprising that it should have developed so well after being detached from the plant at the size mentioned. The Rothschildianum hybrids are among the showiest in the genus, and it is interesting to find them so useful for cutting.

MILTONIA ROEZLII.

THE accompanying illustration represents a beautiful group of Miltonia Roezlii in the establishment of Messrs. Hugh Low & Co., Bush Hill Park, Enfield, and is reproduced from a photograph taken and forwarded some

FIG. 46. MILTONIA ROEZLII.

time ago by Mr. G. I'Anson. When thus grown it is extremely effective, and Messrs. Low find it a plant of the easiest possible culture if placed in a suitable house. We have been asked to give some notes on its culture, as two or three of our correspondents find a difficulty in growing it satis-

factorily; but this, we are inclined to think, chiefly arises from too low a temperature, for it is by no means an alpine plant. Its habitat is in the province of Antioquia, on the slopes of the hills near the river Atrata, a tributary of the Cauca. Here it grows on trees and rocks, mostly in shade, and at 1,000 to 2,000 feet elevation, sometimes associated with Oncidium Kramerianum. Such a habitat suggests warmth, shade, and moisture as among the plant's requirements, and it is in such a house that Messrs. Low grow it. It may be described as Warm or Warm-Intermediate, and some growers find it succeeds admirably in the Phalænopsis house. Mr. Burberry once remarked :—"The best position I can recommend for this is a naturally damp one. It often happens that the foliage of the plants is covered with moisture at early morning in one part of the East Indian house more than another. It is in such a place that Miltonia Roezlii will flourish if not too heavily shaded" (*Orch. Rev.*, ii, p. 89.). Moisture seems to be specially important, and Messrs. Low find that a layer of moss round the base of the pots is conducive to that degree of humidity in the atmosphere which the plants like. Care, however. must be taken not to overdo it during the dull winter months. As regards potting, no special treatment is required, but cleanliness is a very important item, for thrip and red spider will soon work havoc among the foliage if allowed to establish themselves. Dipping the plants and vapourising at intervals are the approved remedies. A compost of one part peat fibre and two parts of sphagnum moss, and the use of rather small pots or pans, has been recommended, but we suspect that an admixture of oak leaves would prove beneficial. We should be glad to know if the new compost has been tried for this species.

SOBRALIA CATTLEYA.

THE flowering of the remarkable Sobralia Cattleya is an event which should not be passed over in silence, and we find the following note respecting it in an account of the Zoological-Botanical Garden (Diergaarde), at Rotterdam (*Gard. Chron.*, 1903, ii, p. 220) :—"A specimen of the large-flowered Sobralia Cattleya was remarkable for its great size and healthy appearance. It is in a mammoth pan, and had eighteen or twenty growths five feet high. It flowered two years ago." We should be glad if Mr. Wilke would send us further particulars, as this plant is the despair of Orchidists in this country, as may be seen by an account given at page 301 of our eighth volume. The only previous instance that we have heard of was the appearance of a bud on a small side shoot, near the top of one of the tallest growths, in the Burford collection (*O. R.*, vi, p. 260), and even this we afterwards learnt did not develop properly.

CALENDAR OF OPERATIONS FOR OCTOBER.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

DURING this month one very important matter with regard to the management of Orchids will be the regulation of the atmosphere in the houses, especially at night, as sudden sharp frosts frequently make their appearance at this season. The grower should always be on the alert to prevent, as far as possible, any great fluctuations in the temperatures, so that all evil effects on his plants through this cause may be avoided. Generally speaking, these October frosts come upon us during the early hours of the morning, and the temperatures of the various departments are sure to fall a few degrees lower than they should be, when on no account must any watering or damping-down be done, until the proper temperature has been obtained, as the drier the houses are, under the circumstances, the better, there being then less chance of the plants getting a chill.

Considering the exceptionally dull season we have passed through, it has been the safest plan to keep a little extra heat in the pipes at night, and such a course not only prevents the temperatures from falling too low by the morning but is also beneficial to the young growths of many autumn-growing Orchids. Another advantage of having a little more heat in the pipes is that more pure air can be safely admitted than when less artificial heat is used. Of course there are times when it is difficult to forecast fluctuations of temperature, but many difficulties may be overcome by careful observation of the outside elements. The temperatures of the various houses should now be kept as near the undermentioned figures as circumstances will permit :—

EAST INDIAN HOUSE.	Day, 70° ; night, 65°.
CATTLEYA AND MEXICAN HOUSES.	Day, 65° ; night, 60°.
INTERMEDIATE HOUSE.	Day, 60° ; night, 58°.
COOL HOUSES.	Day, 55° ; night, 50°.

The day readings will vary slightly according to whether the outside conditions be bright and warm, or dull and cold, but the night temperatures should be as even as possible with the employment of artificial heat. During moist, warm weather the mercury may rise a point or more above the tabulated degree without injury resulting, at all events if a more generous admittance of air through the bottom ventilators be allowed. Shading from now will be unnecessary, and the blinds and other appliances should be taken off the houses, and stored away in a dry condition, also any "stippling" that was placed on the glass for shading purposes should be washed off, taking care during the operation that none of the dirty water runs into the rain-water tanks. As much light as possible should now reach the plants, and to this end all the outside glass

should be washed some time during the month. After the outside has been done a commencement should be made inside, and every part should have a thorough cleaning, washing the woodwork, glass, and everything that will add to the cleanliness of the houses and the appearance of the plants.

When a house has been cleared, the occupants should be arranged so that each one has its due share of light, according to its known requirements, favouring those, if any favour be shown, that are still in an active state, so that the growths may develop and mature before the winter. If there are any plants that are behind in this respect, it is best to remove them to where a slightly higher temperature is kept up, rather than increase that of the house they occupy. I am now speaking more particularly of Cattleyas, Lælias, Dendrobiums, &c., and not Cool house subjects, which in many cases are slowly making growth all through the winter. Deciduous plants, such as Catasetums, Mormodes, Calanthes, &c., although they have no leaves, will still need light to mature their pseudo-bulbs, and in the case of the latter, aid the development of flower-spikes. Those in pots may find a suitable place on a shelf near the glass, taking them down occasionally, and watering those that are in need of it, by immersing the pots to their rims in a pail of water. The deciduous Dendrobiums will also need all the light obtainable, as much now that they have lost their leaves as they did before, but Thunias, when the leaves have fallen away, and the stem-like bulbs have become ripened, need not be placed in a light position, if room is scarce, but may be laid under a stage in such a way that the stems do not lie flat on the earth, and in a position where drip cannot fall on them.

Two warm-growing Oncidiums, Kramerianum and Papilio, are highly appreciated when in bloom, their butterfly-like flowers being very attractive and interesting. These have been in flower for some time, and will continue to produce fresh flowers from each stem for a considerable period longer. These beautiful Oncidiums prefer a light position, and should be suspended close to the roof glass, in either pan or basket, with but a small quantity of material to root into, which should be kept in a fairly moist condition.

Amongst easily grown Orchids are the Sobralias, yet they do not receive as much favour with cultivators as they deserve. Large specimens may now have the old reeds that have flowered cut out, to give the young ones more room to grow, and at the same time allow more air and light to reach them. It is still seasonable to repot any of them that require such attention, but as their treatment has been given in a former Calendar, it will be only necessary to add that they must be kept clean and free from thrips, and watered sparingly for the next few months.

Anguloas, when they have finished up their bulbs, will only need sufficient water to prevent the latter from shrivelling, the same remark

applying to the deciduous Lycastes. L. Skinneri and L. Cobbiana are still in an active state, and the compost should be kept in a moist condition until growth is completed. L. lanipes, Barringtoniæ, plana, mesochlæna, and others of a similar character, will also only require sufficient water to keep the bulbs firm.

Miltonia spectabilis, and its varieties Moreliana, atrorubens, radiata, &c., having gone out of flower, should have very little water given them during the winter months, the moist atmosphere of the Warm house where they are grown being almost sufficient to keep them in good condition. M. vexillaria also, although making growth, should only be watered occasionally, just to prevent the material from becoming too dry. M. Clowesii succeeds best in the Cattleya house, and is now in bloom; M. Regnellii, candida, flavescens, Schrœderiana, × Bluntii Lubbersiana, and Peetersiana succeed along with M. Clowesii, and they all should be kept moderately dry after they have made up their growths.

By this time many of the spring-flowering Cattleyas, as C. Trianæ and C. Mendelii, will have finished their growth, and consequently they will require less moisture at the root, and all the sunlight possible, so that the newly-formed bulbs may be properly hardened and matured, and thus be prepared to withstand the drain upon their resources when the flowering season arrives. When the growths of these species are matured the plants should be watered only at long intervals, receiving just sufficient to keep the bulbs and leaves from more than slightly shrivelling, but sufficient must be given to induce the plants to make plenty of roots, which they will continue to do for some time if properly watered. On the other hand, it should be remembered that too much water at the root or in the atmosphere is one of the principal causes of black rot, sometimes seen amongst this beautiful class of Orchids, and it is therefore the safest and best plan to err rather on the dry side than on the wet.

Continue to give Cœlogyne cristata liquid manure water, but the time between each watering should now be much longer than during the last two or three months. C. Dayana has not finished growing yet, and will still need liberal treatment, but C. tomentosa and C. Massangeana have now done so, and should be kept moderately dry. C. Schilleriana, being deciduous, should be treated like the Pleiones after the leaves have fallen away, and the plants, which are growing on rafts, may be hung at the warm end of the Cattleya house. C. sparsa has finished growing, and will only want water at long intervals: in fact, the majority of these will only need a small quantity of water when in an inactive condition. The object should be now to encourage the majority of Orchids to finish growing, and proceed to take a rest, so that when the growing season arrives, they will be in a fit condition to go through it with satisfaction to us and benefit to themselves.

THE GENUS CRYPTOPHORANTHUS.

THE species of this remarkable genus are popularly known as "Window-bearing Orchids," on account of the flowers being closed at the apex, with a pair of slit-like openings at the sides, and several of them are represented in collections where botanical curiosities are appreciated. No less than five species are now flowering in the fine collection at Glasnevin, under the care of Mr. F. W. Moore, namely, Cryptophoranthus Dayanus, C. Lehmanni, C. hypodiscus, C. Moorei, and C. gracilentus, and as some of them are also flowering elsewhere a few notes on the genus may be of interest.

The structure of the flower is certainly remarkable. Sir Willian Hooker, when figuring the orginal species in the *Botanical Magazine* (t. 4164), called it the "Windowed Masdevallia," remarking:—"This is one of the very curious productions of Nature of which there are such frequent instances among Orchideous plants. The plant is not only singular in colour, the flowers being externally of a deep blackish blood colour, but still more singular in form, with the sepals united below and at the apex, which is open and window-like, the whole representing the head and beak of a bird, with a perforation where the eyes should be." Reichenbach also remarked of the one he called Masdevallia Dayana:—"I always think of certain birds —partridges—when seeing the flower."

The fertilisation of this remarkable genus, and the economy of the peculiar structure of the flowers, remains a mystery. Darwin investigated it minutely, and remarked on it as follows:—"The three sepals always cohere together, and never open, two minute lateral oval windows seated high up the flower and opposite to each other, affording the only entrance into it. The presence of these two minute windows shows how necessary it is that insects should have access in this case as with all Orchids. How insects perform the act of fertilisation I have failed to understand. At the bottom of the roomy and deep chamber formed by the sepals the minute column is placed, in front of which the furrowed labellum stands, with a flexible hinge, and on each side of the two upper petals, a little tube being thus formed. Hence when a minute insect enters, or a larger one inserts its proboscis through either window, it has by touch to find the inner tube in order to reach the curious nectary at its base. After cutting away the sepals I vainly endeavoured, by pushing a bristle into the tubular flower, to remove the pollinia. The whole structure of the flower seemed carefully intended to prevent the withdrawal of the pollinia, as well as their subsequent introduction into the stigmatic chamber. Some new and curious contrivance has here to be made out."

The genus Cryptophoranthus was established by Barbosa Rodriguez, in

1881, for three Brazilian species, which even yet are not known in cultivation, the name being given in allusion to the hidden parts of the flower. Five others were added in 1887, four of which had previously been referred to Masdevallia, and since then four others have made their appearance, all possessing the same essential character, but differing greatly in the size of the flowers, and that of the lateral openings. With respect to the economy of fertilisation, it is unfortunate that no collector of these plants has made any observations on the insects which visit the flowers. This would probably afford a clue to the mystery. Until this is done one can only indulge in speculation, but judging from analogy we may infer that the peculiar structure of the flowers is of a protective nature, and intended to prevent the entrance of insects whose visits would not be of service.

Of the twelve species now known nine are, or have been, in cultivation, as follows :—

1. C. Dayanus (Rolfe in *Gard. Chron.*, 1887, ii, pp. 692, 693, fig. 134), is the finest species in the genus, the flowers measuring fully 1½ inches long, with the lateral openings nearly an inch long. It flowered in the collection of the late John Day, Esq., in July, 1875, and was afterwards described by Reichenbach under the name of Masdevallia Dayana (*Gard. Chron.*, 1880, ii, p. 295). It is a native of Colombia, and Mr. Day's plant was purchased at Stevens' Rooms in September, 1872, at a sale of M. Linden's plants. The sepals are blotched and marbled all over with dark reddish-purple on a pale ground, and the very convex interior of the lateral sepals deep yellow, with a few minute brown dots.

2. C. Lehmanni (Rolfe) flowered in the Glasnevin Botanic Gardens in November, 1899, and was at first thought to be a small flowered form of the preceding. It had been sent from Popayan by Mr. F. C. Lehmann. Shortly afterwards it also flowered with M. E. Ortgies, at the Zurich Botanic Garden. From the preceding it differs in having rather smaller flowers, and the much less concave interior of the lateral sepals blotched with purple, like the rest of the flower.

3. C. oblongifolius (Rolfe in *Kew Bull.*, 1895, p. 5) flowered at Glasnevin in November, 1894, and is said to have been imported by M. Ch. Vuylsteke, of Loochristi, Ghent. It was previously known from dried specimens collected by Mr. J. Charlesworth, of Heaton, Bradford, in some Andine locality unspecified. The flowers are about 10 to 13 lines long, and lined with purple on a pale green ground, and the lateral openings about 6 to 8 lines long.

4. C. atropurpurens (Rolfe in *Gard. Chron.*, 1887, ii, p. 693) was the earliest known species of the genus, having been described by Lindley as early as 1836 under the name of Specklinia atropurpurea, from a specimen which flowered in the Liverpool Botanic Garden (*Bot. Reg.*, sub. t. 1797).

It is a native of Jamaica and Cuba, and was afterwards figured in the *Botanical Magazine* as Masdevallia fenestrata, Lindl. (t. 4164), when the plant flowered at Kew. The flowers are dark purple in colour, and 7-9 lines long, with the lateral openings about 2 lines long.

5. C. HYPODISCUS (Rolfe in *Gard. Chron.*, 1887, ii, p. 693) was introduced by Mr. F. C. Lehmann, and flowered with Messrs. Hugh Low & Co. in 1878, being described by Reichenbach under the name of Masdevallia hypodiscus (*Gard. Chron.*, 1878, ii, p. 234). Its habitat was not recorded, but a plant which has since been identified with the original description came from Popayan. The flowers are about 8 lines long, and dull purple at the apex and base, with the remainder light green. The lateral openings are about 4 lines long, and the nerves of the sepals are covered with prominent slender whitish bristles.

6. C. GRACILENTUS (Rolfe in *Gard. Chron.*, 1887, ii, p. 693) was introduced from Costa Rica by Endres, and flowered with Messrs. James Veitch & Sons, and in the Hamburg Botanic Garden, in 1875, when Reichenbach described it as Masdevallia gracilenta (*Gard, Chron.*, 1875, ii, p. 98). The flowers are about 3 to 4 lines long, and dull dark purple, with the lateral openings about two lines long.

7. C. MOOREI (Rolfe) is a small species which flowered in the Royal Botanic Garden, Glasnevin, in September, 1899. It has broadly elliptical leaves, about 1½ inches long, and purple underneath, and dull red-purple flowers about nine lines long, lined with darker purple, and the lateral openings about six lines long.

8. C. MACULATUS (Rolfe in *Gard. Chron.*, 1887, ii, p. 693) flowered at Kew in 1887, and is probably of Brazilian origin, as another plant received at the same time from Mr. Walker proved to be Saundersia mirabilis. The flowers are about three lines long, marbled and spotted all over with brown on a paler ground, and the lateral openings about a line long.

9. C. MINUTUS (Rolfe in *Kew Bull.*, 1895, p. 5) is a minute species, far smaller than any other yet known, the whole plant but little over half an inch high. It flowered with Mr. James O'Brien, Harrow-on-the-Hill, in November, 1891, but its habitat is not yet known. The flowers are large for the size of the plant, being 2½ lines long, and deep maroon-purple in colour, while the lateral openings are about a line long.

There are three other Brazilian species, not yet known in cultivation, as follows:—

10. C. PUNCTATUS, *Rodr. Gen. et Sp. Orch. nov.*, ii, p. 80; *Cogn. in Mart. Fl. Bras.*, iii, pt. 4, p. 322, t. 76, fig. 1.

11. C. FENESTRATUS, *Rodr. l.c.*, p. 80; *Cogn. l.c.*, p. 322. t. 76, fig. 2.

12. C. CRYPTANTHUS, *Rodr. l.c.*, p. 80; *Cogn. l.c.*, p. 324, t. 76, fig. 3.

CHONDRORHYNCHA CHESTERTONI.

Orchids with fringed petals are not a numerous class, though the occurrence of similar appendages to the lip is not by any means rare, familiar examples being the remarkable Dendrobium Brymerianum, Brassavola Digbyana, Nanodes Medusæ, and Habenaria Susannæ. The possession of fringed petals may perhaps be regarded as a higher degree of specialisation, for in most cases the lip is also fringed, as in the one now figured, in Dendrobium Harveyanum, figured on page 313, and in Sievkingia Reichenbachiana (*Bot. Mag.*, t. 7576). Chondrorhyncha Chestertoni was described by Reichenbach in 1879 (*Gard. Chron.*, 1879, ii., p. 648) as "a very remarkable Neo-Granadan discovery of Mr. Chesterton,"

Fig. 47. Chondrorhyncha Chestertoni.

having a larger flower than C. fimbriata, and the petals "with a very much developed long fringe, where there are but teeth to be seen in the old species." In conclusion, the author remarked:—"I had my material, with a beautiful yellow flower, from Mr. F. Sander, the possessor of the novelty." For some years practically nothing further was heard about it, until it was re-introduced by Messrs. Linden, when a figure appeared (*Lindenia*, ix., t. 405), but now it is found in a number of collections. The one here figured flowered in the Royal Botanic Gardens, Glasnevin, some time ago, when the photograph here reproduced was taken by Mr. Leo Farmar. It is a very striking plant, as may be seen from the illustration

though it may be added that the delicate fringes of the petals have not come out as clearly as could be wished. Those of the lip are much stronger, and have come out better. The flowers are light yellow in colour, with some brown blotches on the base of the lip, and they measure nearly 3 inches across their broadest diameter. It succeeds in the Warm house, with its allies, the Pescatoreas, Warscewiczellas, and Bolleas, and we recently saw a plant in the Phalænopsis house at Clare Lawn bearing three good flowers.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of the above Society was held at the Drill Hall, Buckingham Gate, Westminster, on September 1ST, when there was a small but very interesting display of Orchids.

J. Wilson Potter, Esq., Elmwood, Croydon (gr. Mr. Young), was awarded a First-class Certificate for Cattleya × Pittiana, J. Wilson Potter's variety (granulosa Schofieldiana × Dowiana aurea), a very large and handsome form, having the sepals and petals bronzy yellow, tinged with rose, and the lip strongly three-lobed, with the front lobe ruby-red, shading off to blush-white at the fimbriate margin, and the disc orange.

J. Colman, Esq., Gatton Park, Reigate (gr. Mr. Bound), exhibited a plant of Odontoglossum bictoniense with three spikes, a fine example of Lælio-cattleya × Henry Greenwood Gatton Park variety, of very large size, and L.-c. × bletchleyensis gloriosa, having the sepals and petals bronzy yellow, changing to pale rose towards the margin, and the lip dark purple.

J. G. Fowler, Esq., Glebelands, S. Woodford, Essex (gr. Mr. Davis), showed a fine example of the remarkable Catasetum Russellianum, with a large spike of whitish green flowers, lined with darker green.

W. Cobb, Esq., Tunbridge Wells (gr. Mr. Howes), showed a clear pale yellow form of Coryanthes speciosa, under the name of C. Cobbii, having the sepals and petals yellowish white, and the lip tinged with orange.

Messrs. Charlesworth & Co., Heaton, Bradford, staged a fine group, for which a Silver Flora Medal was awarded. Included were Cattleya × Niobe, C. × Lord Rothschild, C. × suavior superba, C. × Germania, C. × Mrs. Pitt, having the sepals and petals rose, and the disc of the lip orange; Lælio-cattleya × elegans, L.-c. × Gottoiana, L.-c. × Donna Roma, L.-c. × Issy, Sophrolælia × Gratrixiæ magnifica (L. tenebrosa × S. grandiflora), having a large flower of a rich purple-rose colour, veined with claret-red; Rodriguezia Claesiana, &c.

Messrs. Sander & Sons, St. Albans, received a Silver Banksian Medal for a good group, including Odontoglossum × lepidum, O. Krameri,

Cypripedium × Transvaal, Miltonia vexillaria, M. spectabilis, M. Roezlii, many forms of L.-c. × bletchleyensis, L.-c. × Martinetii and L.-c. × Britannia (L.-c. × Canhamiana × C. Warscewiczii), having a large white flower, tinged with rose, the front of the lip being rose-purple, and the disc sulphur-yellow. An Award of Merit was given to Cattleya × exquisita (luteola × Parthenia "Prince of Wales"), a charming little hybrid bearing five fragrant flowers on two spikes. The flower is comparable to a small, white form of C. Mossiæ, the sepals and petals being white, the disc of the lip rich yellow, and the front lobe marbled with bright purple.

Messrs. B. S. Williams & Sons, Upper Holloway, showed a good group of about fifteen kinds of hybrid Cypripediums, including C. × Thorntoni, C. × Harrisianum vivicans, and C. × Lebaudyanum, together with Lælia crispa, Vanda tricolor superba, V. t. Glen variety, and Cœlogyne Massangeana.

Messrs. Stanley Ashton & Co., Chase Side, Southgate, showed Cattleya × Crashleyi (granulosa × Loddigesii ?), and Cattleya × Tankervilleæ (bicolor × Rex), the latter obtaining an Award of Merit. This is a pretty hybrid, having cream-yellow sepals and petals, and the lip bright purple, except the small auriculate side-lobes, which are whitish.

At the meeting held on September 15th, there was a very good display of Orchids, several fine groups being shown.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), received a Silver Flora Medal for an effective group, containing Cypripedium niveum, C. × Felicity, C. × Wiertzianum, C. × Fowlerianum, Cattleya Eldorado, Vanda cœrulea, the curious Oncidium microchilum, Odontoglossum aspidorhinum, O. Uroskinneri album, O. bictoniense album, Miltonia × Bluntii Lubbersiana, M. Regnellii Crawshayana, M. Roezlii, M. candida, and the rare Eulophia guineensis.

Sir Trevor Lawrence, Bart., Burford, Dorking (gr. Mr. White), was awarded a Silver Banksian Medal for an interesting group, containing the remarkable Bulbophyllum Micholitzii, having narrow green segments, Pholidota chinensis, Lælio-cattleya × Proserpine, L.-c. × purpurato-Schilleriana, a fine example of Disa grandiflora bearing a spike of six flowers, Miltonia × Bleuana, Oncidium varicosum Burford variety, having very large flowers, and a plant called Polystachya Buchanani var. viride, which latter received a Botanical Certificate. It was collected in West Africa by the third son of Sir Trevor Lawrence, Lieut. C. T. Lawrence, of the West African Frontier Field Force. The inflorescence bore eight side branches, and numerous small, emerald-green flowers with white lips.

C. G. Roebling, Esq., 333, West State Street, Trenton, New Jersey, U.S.A. (gr. Mr. Clinkaberry), exhibited, through Messrs. Sander & Sons, a

plant of *Zygopetalum* × Roeblingianum (rostratum × maxillare Gautieri) a very handsome hybrid, which received a First-class Certificate. A note of this plant appears on page 311.

T. M. Crook, Esq., Stanley Grange, Hoghton, near Preston (gr. Mr. Parks), exhibited Cypripedium superbiens × Rothschildianum, a plant of C. × Lord Derby, which was remarkable for having three spikes from the centre of a single growth, two of them bearing single flowers and the other two; C. Lawrenceanum Gratrixianum, having the flower green and white, with a rose tint on the petals and lip (Award of Merit); and C. × Rappartianum (Lathamianum × Charlesworthii.) This latter, which also gained an Award of Merit, had large flowers, the white dorsal sepal being tinged and marbled with magenta-rose, and the petals and lip slightly veined with brownish purple.

Mrs. Timmins, Stone Hall, Oxted, exhibited a fine, well-flowered example of Cattleya Loddigesii, which gained a Cultural Commendation.

D. O. Drewett, Esq., Riding-Mill-on-Tyne, exhibited Cypripedium × calypsoides (Calypso × Rothschildianum.)

C. H. Feiling, Esq., Southgate (gr. Mr. Stocking), showed two good examples of Cypripedium × Massaianum, C. × Neptune, C. × Shillianum, C. × Wiertzianum, and C. × Elise (Pallas × Rothschildianum), the latter a bold and handsome flower.

Sir Wm. H. S. Marriott, Bart., Blandford, showed Cattleya × armainvillierensis (Mendelii × Warscewiczii.)

Baron Sir H. Schröder, The Dell, Egham, sent a flower of the handsome Sophrocattleya × Queen Empress.

W. Thompson, Esq., Walton Grange, Stone (gr. Mr. Stevens), showed Odontoglossum × Juno (luteopurpureum sceptrum × cirrhosum) having rather narrow, light yellow sepals and petals, blotched with chocolate, and a nearly white lip, blotched with purple.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent the fine Lælio-cattleya × Wellsiana magnifica, having broad, rosy lilac sepals, with a crimson-purple feather on the upper halves, and the front lobe of the lip rich ruby-purple.

Messrs. Charlesworth & Co., Heaton, Bradford, were awarded a Gold Medal for a magnificent group of hybrids, containing six plants of the fine Cattleya × Iris (bicolor × aurea), C. × Chamberlainiana (Leopoldii × Dowiana), C. × Germania (granulosa × Hardyana), C. × fulvescens, C. × Lord Rothschild, C. × Harrisoniana Alexandra, having the flower white, slightly tinged with rose; Lælia × Digbyano-purpurata, L. × Helen (tenebrosa × Digbyana), Lælio-cattleya × Clive, L.-c. × callisto-glossa, Sophrolælia × heatonensis, Odontoglossum × Duvivierianum, Cypripedium × Madame Georges Truffaut, and others.

Messrs. Sander & Sons, St. Albans, were awarded a Silver Flora Medal for a fine group, containing many Cypripediums, Lælio-cattleya × Atalanta, L.-c. × Canhamiana, L.-c. × Duchesnei, L.-c. × Herga (L.-c. × elegans × C. Gaskelliana), Pachystoma Thompsoniana, and some Odontoglossum crispum.

Messrs. Hugh Low & Co., Bush Hill Park, also gained a Silver Flora Medal for a fine and well-arranged group, containing Oncidium incurvum, O. microchilum, a well-flowered O. carthaginense, Cattleya Gaskelliana alba, C. Dowiana aurea, Miltonia Regnellii, Dendrobium formosum, Cypripedium × Frau Ida Brandt, C. × Madame Georges Truffaut, C. × Olivia, C. Lawrenceanum Hyeanum, and a form of Bulbophyllum Lobbii.

Messrs. J. Veitch & Sons, Chelsea, exhibited two distinct forms of Cattleya × Pittiana, one having the sepals and petals bronzy rose, and the other yellow, the lip in each case being veined with rose-purple; Lælio-cattleya × Eunomia, L.-c. × Haroldiana, and others.

A MEETING of the Orchid Committee was held at the Society's gardens at Chiswick on September 29th, in connection with the great Show of British-grown Fruit and Vegetables on that and the two following days, when, according to the Committee's report, the following six Orchids were submitted for adjudication, but they were not subsequently exhibited to the public, and the only Orchids observed were two good examples of Cattleya Gaskelliana alba and a few other showy things, used to embellish a collection of fruit exhibited by Messrs. Hugh Low & Co., of Bush Hill Park. None of the six plants received any award.

N. C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), sent Cypripedium × Nandii, and Cattleya × Lord Rothschild, Oakwood variety (Gaskelliana × Dowiana aurea), said to differ from the original in having much broader petals and rich yellow sides to the lip.

Henry Little, Esq., Baronshalt, East Twickenham (gr. Mr. Howard), sent Cattleya × Hardyana, Baronshalt variety, and C. × Wendlandii, Little's variety (Bowringiana × Warscewiczii), bearing a spike of four flowers, with rich rosy-purple sepals and petals and a maroon-purple lip.

W. P. Burkinshaw, Esq., Hessle, Hull (gr. Mr. Barker), sent Cattleya Hardyana, Hessle variety, a handsome form with purplish rose sepals and petals, and a rich crimson lip, having golden lines and two yellow patches on the sides of the lip.

H. S. Goodson, Esq., Westfield Road, Putney (gr. Mr. Chown), sent Cypripedium × H. S. Goodson (Swinburnei × T. B. Haywood), most like the former in colour. The upper sepal was greenish with dark lines, the petals tinged with rose on the outer halves, and spotted with brown below, and the lip whitish, tinged with brown rose.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

A MEETING of this Society was held at the Botanical Gardens, Old Trafford, on September 11th, when there was a very good display of plants, medals being awarded to four of the groups.

S. Gratrix, Esq., Whalley Range (gr. Mr. Cypher), staged a choice group, which gained a Silver-gilt Medal. Among the more noteworthy plants were Brassocattleya × heatonensis (Cattleya × Hardyana × Brassavola Digbyana), a handsome thing which gained a First-class Certificate, Sophrolælia × heatonensis (Sophronitis grandiflora × Lælia purpurata), a very richly coloured hybrid, Cypripedium × Charltoni, a fine hybrid between C. Charlesworthii and C. × Harrisianum, and C. × Eismannianum grandiflorum, each of the three latter receiving an Award of Merit.

E. Rogerson, Esq., Didsbury (gr. Mr. Blomily), gained a Silver Medal for a fine group, First-class Certificates being given to Cattleya × Massaianum superbum and C. × Iris magnifica, while Awards of Merit were given to Cattleya × Boadicea, C. × Maroni var. Olive, and Cypripedium × Para (bellatulum × Charlesworthii).

T. Statter, Esq., Stand Hall, Whitefield (gr. Mr. Johnson), also received a Silver Medal for a good group, an Award of Merit being also given to the natural hybrid Cattleya × Brymeriana.

Messrs. Sander & Sons also sent a good group, which gained a Silver Medal, an Award of Merit being given to Cattleya × Ella var. superba (bicolor × Warscewiczii).

Messrs. John Cowan & Co., Gatacre, exhibited the handsome Cypripedium Lawrenceanum Gratrixianum, which gained a First-Class Certificate.

Messrs. A. J. Keeling & Sons, Bradford, received a Vote of Thanks for a small group, and an Award of Merit for Masdevallia macrura.

Mr. S. Allen, Sale, also sent a small group, for which a Vote of Thanks was given.

ORCHIDS IN SEASON.

A THREE-FLOWERED inflorescence of the pretty little Cattleya × Winniana (Gaskelliana × Forbesii) is sent from the collection of the Right Hon. J. Chamberlain, M.P., Highbury, Birmingham, by Mr. Mackay. The sepals and petals are rosy lilac, and most like C. Gaskelliana in shape, with the lip strongly three-lobed, somewhat similar in colour, except that the disc and interior of the side lobes are light yellow, and have the characteristic markings of C. Forbesii. It is delicately fragrant, and has improved since it was described at page 326 of our last volume. A good dark form of Lælio-cattleya × elegans is also enclosed.

A good form of Lælio-cattleya × Schilleriana is sent from the collection of J. W. Arkle, Esq., West Derby, Liverpool. It was purchased as an imported L.-c. × elegans. A flower of the handsome Stanhopea insigne is also sent. This genus has been somewhat neglected of late years, but we are glad to find that they are appreciated in several collections.

A good form of Cattleya Gaskelliana is sent by M. Aug. Chantin, of Paris. The sepals and petals are delicate lilac blush, and the lip rich purple-crimson in front, with the disc deep yellow, more or less veined with light reddish-maroon towards the base.

A very interesting series is sent from the collection of J. J. Neale, Esq., of Penarth. A flower of the rare Houlletia Brocklehurstiana was cut from a splendid spike of nine flowers, and Mr. Davy remarks that the plant has been grown in an intermediate temperature, and kept comparatively dry at the root all the year round. Diacrium bilamellatum is another rarity, which is said to be flowering out of season from a very young and small growth. The flowers are considerably smaller than those of D. bicornutum, and pure white. Other interesting things are Catasetum fimbriatum, Polystachya laxiflora, Epidendrums nocturnum and umbellatum, Oncidiums macranthum and excavatum, a pretty form of Odontoglossum crispum from a small imported plant, Masdevallias bella, Troglodytes, peristeria, demissa, Reichenbachiana, and Heathii, and a curious little Stelis whose identity is at present uncertain. It is interesting to find another collection in which botanical rarities receive such attention,

ZYGOPETALUM × RŒBLINGIANUM.

THE two-flowered inflorescence of the handsome Zygopetalum × Rœblingianum has been kindly sent by Sir Frederick Wigan, Bart., Clare Lawn, East Sheen, and a few days earlier we had the pleasure of seeing the plant in the collection. It is a hybrid raised in the collection of C. G. Rœbling, Esq., Trenton, New Jersey, by Mr. H. T. Clinkaberry, from Zygopetalum rostratum ♀ and *Z.* maxillare Gautieri ♂, and received a Certificate at the Spring Show of the New York Horticultural Society in May, 1902, as recorded at page 220 of our last volume. When Mr. Fritz Sander was in the United States in the following autumn he brought one of the plants over, to be flowered, exhibited, and sold by auction, the amount realised to be handed over to the Royal Horticultural Society as Mr. Rœbling's gift to the new Horticultural Hall. We saw the plant at St. Albans a few weeks ago, and on September 15th it appeared at a meeting of the R.H.S., and was awarded a First-class Certificate. On the following Friday it was offered for sale at Messrs. Protheroe and Morris's Rooms in Cheapside, and was ultimately knocked down to Sir Frederick

Wigan at the price of fifty guineas, which sum will be handed over to the building fund intact, the auctioneers kindly foregoing their commission on the sale. A figure has just appeared in the *Gardeners' Chronicle* (1903, ii, p. 227, fig. 93), which reached us by the same post as the flowers from whic it was prepared, and a comparison shows that the figure has been somewhat enlarged. The plant recalls *Z.* maxillare in habit, but the flowers are more like those of *Z.* rostratum. The sepals and petals are oblong-lanceolate, acuminate, 1¾ inches long, and light green, with a light brown area in the centre, made up of more or less confluent blotches. The limb of the lip is nearly orbicular, 1¼ inches long, slightly broader, and very prettily lined and marbled with violet-purple on a whitish ground. The large horse-shoe shaped crest is yellow, with numerous violet-purple radiating lines, and the column is of the latter colour. It is a handsome addition to the group.

PAPHIOPEDILUM NIVEUM.

I SEND you a few particulars, as desired, about the cultural treatment given to Paphiopedilum niveum, figured at page 273.

The plant came here as newly-imported some four years ago, and is grown in the Warm house, where it occupies a position at the warmest end, some two feet from the glass roof. Two years ago it was placed in a ten-inch pan, well drained, in a compost of fibrous loam, sphagnum moss, and limestone, in equal parts. It is given abundance of water during the summer months, and never allowed to become really dry in winter. With this treatment growth is luxuriant, the plant retains every leaf, and is the envy of every Orchid enthusiast who has seen it. This year the plant carried fifteen flower scapes, six of which were twin flowered.—J. MACKAY.

[The beautiful plant figured is a picture of health, and we can quite realise what Mr. Mackay says about it. Many readers will be glad to know the exact conditions under which it was grown, because it will enable those who do not succeed so well with it to bring their own method into line, in the hope of obtaining equally good results. There is one detail in the figure to which we desire to call attention, namely, the black margins to some of the flowers. These have no existence in the original photograph, and ought not to have been here. The fact is, the photograph was taken against a rather light background, and we requested that the latter should be darkened a little before reproduction, in order to throw the flowers up better. Unfortunately the retoucher exceeded his instructions, with the result mentioned. These lines, however, though unsightly to those who know the flower, do not in any way affect the accuracy of the picture as a record of a remarkable little specimen, on the culture of which Mr. Mackay deserves to be congratulated.—ED.]

DENDROBIUM HARVEYANUM.

On page 305 we have given an illustration of the remarkable Chondrorhyncha Chestertoni, as an example of an Orchid having both the petals and lip fringed, and it may be interesting to figure the equally striking Dendrobium Harveyanum, for purposes of comparison. In this the petals are more deeply fringed than the lip, as may be seen from the illustration, which is reproduced from a photograph of a plant in the collection of the Rev. F. D. Horner, Lowfields, Kirkby Lonsdale. The species is a native of Burma, and was introduced by the Liverpool Horticultural Co., and flowered for the first time in Europe in the collection of the late Enoch Harvey, Esq., of Aigburth, Liverpool, in 1883, when it

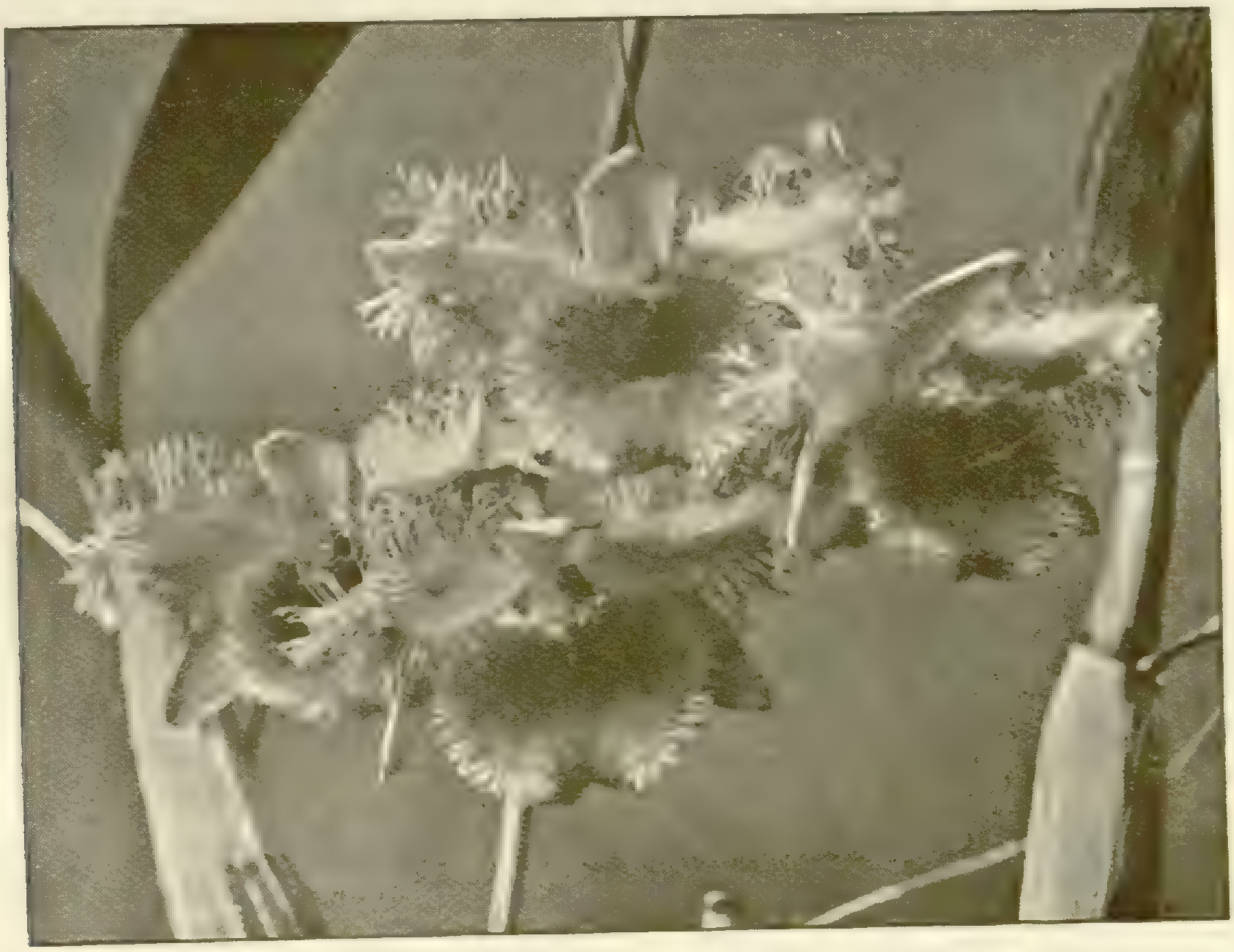

Fig. 48. Dendrobium × Harveyanum.

was described by Reichenbach (*Gard. Chron.*, 1883, i., p. 624). The author spoke of it as a very fine surprise, recalling D. capillipes in habit, with a dash of D. Brymerianum in the lip, and gloriously fringed petals, which at first made him think of some peloria, though the lip and petals were normal. The flowers are deep yellow, without any markings, and are borne in racemes of three to eight. Its exact affinity is a little doubtful, but, all points considered, it may be placed near D. finibriatum. The fringes of the petals may be described as branching filaments, and their character may be made out by the aid of a lens, though it is still more obvious in the original photograph. It succeeds under the treatment given to other Burmese species, but is still rare in cultivation.

RECENT EXPERIMENTS IN THE HYBRIDISATION OF ORCHIDS.

A PAPER by Capt. C. C. Hurst, F.L.S., bearing the above title, was read at a meeting of the Botanical Section of the British Association, at Southport, on September 10th last, of which a summary may be interesting. The lecturer pointed out that the first hybrid Orchid raised by hand was Calanthe × Dominii, which flowered with Messrs. Veitch at Exeter, in 1856, out of C. Masuca by pollen of C. furcata. Since then, and especially during the last decade, the number of hybrid Orchids has increased remarkably, until at the present time there are on record more than 1,300, each representing a distinct cross. Of these at least 230 are generic hybrids, while the individuals of each cross are innumerable. The great majority, too, are fertile, and comprise hybrids of the second, third, and fourth generations. One of the more advanced of these is Paphiopedilum × Kubele, which contains five distinct species in its pedigree. It is evident, therefore, that in many respects Orchids offer a wide field to the student of inheritance.

In speaking of Intermediate Hybrids the case of Paphiopedilum × Hera and its varieties was used as an illustration, and as this question has already been exhaustively dealt with we must refer our readers to the two papers and a series of thirty figures which appeared in earlier issues (*supra*, pp. 71-74, figs. 16-18, and pp. 97-99). It is claimed that the results shown are a further confirmation of the Mendelian idea of the separation of hybrid characters.

In "Dominant Hybrids" another class of phenomena appeared. In certain distinct hybrids we find that one parent is always dominant in all characters, almost to the exclusion of the other. For example, Epiphronitis × Veitchii, raised by Messrs. Veitch in 1890 out of Sophronitis grandiflora by pollen of Epidendrum radicans, is in all its characters a pure Epidendrum; the only traces of the Sophronitis parent being the dwarfer habit, fewer larger and darker flowers, with a few slight modifications of the lip and crest. Indeed, did we not know that Sophronitis was the other parent, it would have been impossible to have suggested it. In addition to the above, more than twenty distinct hybrids have been raised between various species of Epidendrum with reed-like stems, and various species of Epidendrum, Lælia, Cattleya, and Sophronitis with pseudobulbs, comprising thousands of individuals, and all without exception have the reed-like stems and general characters of Epidendrum. Unfortunately these hybrids have so far proved infertile, their pollen being apparently defective and actually impotent. We cannot, therefore, test their nature by further breeding, and it is impossible to say

whether they are comparable to Mendel's cases of dominance in Pisum.

To another class of phenomena Millardet's term of "False Hybrids" has been applied. The most numerous of these are the various crosses that have been attempted by expert hybridists, at different times and in different countries, between *Zygopetalum* and several more or less remote genera, with the result that all the offspring have proved to be *Zygopetalum* pure and simple. Altogether more than 400 seedlings have been raised by Messrs. Veitch, of Chelsea, Heath, of Cheltenham, Bleu, of Paris, Ross, of Florence, Leon, of Bletchley, Orpet, of S. Lancaster, U.S.A., McWilliam, of Whitinsville, U.S.A., and the Rev. Horner, of Kirkby Lonsdale. The seed-parent in each case was *Zygopetalum Mackayi* (the reverse crosses being unsuccessful). The pollen used was from Odontoglossum Pescatorei, O. crispum, O. grande, O. bictoniense, Oncidium tigrinum, Lycaste Skinneri, Lælia anceps, Calanthe vestita, and Vanda cœrulea. All the 400 seedlings raised from these matings proved to be exactly like the seed-parent, *Z. Mackayi*. It is interesting to note, however, that the individuals raised from the same capsule varied in size and colour of the flowers in the same way that the seed-parent does in its native habitat. In other words, these false hybrids behaved just as if they had been raised from self-fertilised seeds, though self-fertilisation was impossible, as the pollinia were all carefully removed before the crosses were made.

All these "false hybrids" are maternal in character, and it is apparently not a case of Mendelian dominance, for when Mr. McWilliam re-mated one of the "false hybrids" (*Z. Mackayi* × Lælia anceps) with pollen of a white L. anceps the result was still *Z. Mackayi* pure and simple.

"False hybrids" were known in other groups, including some whose characters were paternal, and cases were just coming to light in which a single character only behaves as a "false hybrid," the remaining characters being true hybrids, but whether all these phenomena had a common explanation it was difficult to say. So far as *Zygopetalum* was concerned it was suggested that the stimulas of fertilisation might induce a kind of parthenogensis, without actual union of the sexual elements, causing the "false hybrid" to resemble the seed-parent in all characters, and it seemed quite feasible that an extension of it to individual gametes of either parent may ultimately explain all the phenomena of "False Hybridism," or "Monolepsis," as Bateson more precisely terms it.

In conclusion, there is no doubt that the question of "False Hybridism," or Monolepsis, opens out a wide field for original research in many genera of plants and animals, and as our knowledge of normal inheritance increases the need for experiments into the nature of one-sided inheritance becomes more urgent and pressing.

ORCHID HYBRIDISATION.

(*Continued from page* 278.)

WE may now say something about the choice of materials, and the various groups in which useful results have been obtained.

The genus Paphiopedilum first claims our attention, for its hybrids far outnumber those of any other, and this is largely due to the ease and certainty with which the seedlings can be raised. The process is remarkably simple, for after the selected cross is made one has only to await the ripening of the capsule, and when this event takes place scatter the seeds on the compost of some plant that will not require repotting for a long period, keep the compost sufficiently moist, and await the appearance of the seedlings. In the latter respect they are somewhat erratic, sometimes appearing very quickly, and at others not until after the lapse of several months or more. For this reason little is gained by making up special seed-beds for them, as the pans might be thrown away after the lapse of several months, under the impression that the seed was bad, because no signs of germination were visible.

How long a period may elapse between the sowing of the seed and the appearance of the seedlings may be inferred from an article by Mr. Reginald Young, of Liverpool, which appeared in these pages in 1898 (*O. R.*, vi, pp. 6-8). In reply to the question: "At what date should a sowing be written off as a failure?" he remarked:—"The very last find I had was two seedlings on the 16th December, 1897, the seed having been sown as far back as the 7th December, 1895, and I have a record of still longer intervals between the sowing of the seed and the appearance of seedlings. Personally, I never cross off any sowing as a failure until the plant on which the seed has been sown has been repotted." And in the case of P. × Quirinus he stated that from seed sown in March, 1892, a single seedling appeared in January, 1893, and three or four more in January, 1896—a curiously long interval (*O. R.*, viii, p. 72). Sowing the seeds on blocks of wood has with this genus resulted in complete failure, and we believe it is chiefly of value for epiphytal species, which, if sown at the proper period, begin to germinate almost immediately.

With respect to the selection of parents one cannot say much, but the records speak for themselves. Probably P. Spicerianum and P. barbatum have been the two most popular parents in the past, but more recently P. Rothschildianum has proved of great value. P. Charlesworthii has also been in request, owing to its beautiful rose-coloured dorsal sepal. P. niveum and P. bellatulum have also yielded some excellent results. P. Fairrieanum, too, would have to be mentioned were it not for the almost impossibility of obtaining pollen to work with, and its hybrids have not

proved at all good parents. Some of the winter-blooming hybrids are now receiving a good deal of attention, and there is plenty of work to be done by a judicious selection of the best forms as parents.

Cattleyas and Lælias come next in popular estimation, and in the extent to which hybridisation has been carried on. Indeed, it is becoming difficult to find new combinations among the showier species which flower together. But there are plenty of crosses that will bear repetition, when good forms of the parents are available, as some of the hybrids that have been raised are still rare, and there is always the steady accession of hybrids which can be utilised as parents. Some of them are very easily raised under suitable conditions, and as the seedlings germinate quickly it has become the custom to prepare special seed pans, or sow on blocks of wood, as previously described, so that the whole operation can be carried on under strict control. Indeed, the old plan of sowing the seeds on the compost of established plants has been in this case largely superseded. The process has already been described.

With respect to the choice of parents, it may be remarked that Lælia purpurata, L. crispa, and L. cinnabarina have proved particularly useful as seed bearers, no doubt because they possess good constitutions. The hybrids of Cattleya Dowiana are among the best in the group, but this species has been more often utilised as the pollen parent. C. Leopoldi, intermedia, granulosa, amethystoglossa, and Loddigesii have also yielded some fine hybrids when combined with the showier species of the genus. And one must not forget to mention the remarkable Brassavola Digbyana as having produced some valuable hybrids, though they are somewhat deficient in colour. Lælia pumila and L. Dayana are both good seed parents, and have given some good results. Some of the best hybrids are also being utilised as parents. Here, again, there is a great mass of records which can be utilised as a guide to future work.

Sophronitis grandiflora crossed with various Cattleyas and Lælias has resulted in a number of very charming little hybrids. It is a good seed parent, inasmuch as capsules are very easily produced, but the seedlings are by no means easy to raise. It has also been used as a pollen parent, but with less certain results so far as the production of good capsules is concerned. It is believed that this arises from the shortness of the pollen tubes of the Sophronitis. If a capsule of Cattleya which has been fertilised with the Sophronitis be divided longitudinally the fertile seeds will be found near the apex of the capsule, and these have a brownish tinge, while those at the other end are white and fluffy, and contain no embryos. Frequently a sharp dividing line may be seen beyond which the pollen tubes have not reached, consequently the ovules have not been fertilised. Precisely the same thing has been observed in capsules of Brassovala Digbyana

fertilised with Cattleya, and here again the relatively much greater distance which the pollen tubes have to traverse affords an explanation. When such a sharp dividing line is seen the upper part of the capsule may be discarded bodily, and only the remainder sown. The charming little hybrids known under the names of Sophrocattleya and Sophrolælia show how deserving the group is of more attention. Very much yet remains to be done, and the results already obtained should stimulate further efforts.

Epidendrum radicans has yielded a few interesting hybrids, particularly in combination with other genera, and it is curious to note that in all such cases it has been used as the pollen parent. Innumerable attempts have been made to utilise it as the seed parent, but, except in the case of pollen taken from another species of Epidendrum, always without success. Capsules are not produced, and there seems to be some complete obstacle to successful fertilisation, which cannot be overcome. This is the more curious, because as a pollen parent it has several times been used with complete success, the seed parents being Cattleya Bowringiana, Lælia purpurata, L. cinnabarina, Sophronitis grandiflora, Epidendrum evectum, E. vitellinum, and E. xanthinum. The one exception that we remember is that seedlings were obtained by Messrs. Sander from E. radicans by pollen of E. Wallisii (*O. R.*, v., p. 301). There is room for further experiments here.

(To be continued.)

NOTES ON PHOTOGRAPHS RECEIVED.

A SERIES of very interesting photographs have been received since our last issue appeared, respecting which a few notes should be written.

First may be mentioned two handsome photographs of Cattleya × Hardyana which have bloomed this year in the collection of Clement Moore, Esq., of Hackensack, New Jersey.

One represents a noble specimen bearing four racemes, and an aggregate of sixteen or seventeen flowers, the best having five. It is fairly typical. The other shows a three-flowered inflorescence of a magnificent form. Mr. Moore remarks:—"The large plant is very rich in colour, but the smaller is the finest flower I have ever seen. The colour is intense; the sepals and petals are darker than the lips of most Cattleya gigas, and the eyes instead of being yellow are dark maroon brown." The shape is excellent, and what we particularly notice is that the characteristic Dowiana veining extends all over the yellow in the throat, which is not the case in the other form. Another photograph shows a group of C. Warscewiczii flowering during the present summer in Mr. Moore's collection, and a remarkable lot they are, the photograph showing a complete bank of flowers,

far too numerous to count. These photographs show evidence of remarkably successful culture, and respecting this Mr. Moore remarks:—"My gardener, Mr. Knight, received his schooling with Messrs. Charlesworth and Co., and he is certainly a credit to them."

Another interesting series is sent by A. H. Hill, Esq., of San Francisco. First may be mentioned a photograph of the flower of Cattleya Percivaliana having three lips, which was taken in January last. Both the petals and lateral sepals are normal, and the lips all distinct and perfect, but smaller than usual, so that it appears to be a case of fission of the lip into three. A second flower on the same plant had two lips, and Mr. Hill thinks the abnormal character may not be constant, for another plant that gave a two-lipped flower in 1902 (of which a photograph is also sent) produced a perfectly normal flower this year. Another photograph shows a plant of Cattleya Warscewiczii bearing an eight-flowered spike, which has just appeared in the collection. A second photo shows the buds before expansion. Mr. Hill remarks:—"I have had a large proportion of my plants this year give me spikes of five and six flowers, some of extreme size." About three years ago another plant of this species produced a spike of eight flowers, and it is evident that the plants are extremely well grown.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, during October, on the 13th and 27th respectively, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

Meetings of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on October 2nd and 16th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 3 p.m. It may be added that these meetings are now held uniformly on Friday, instead of Thursday, as before.

We learn that the plant of Arachnanthe Lowii in the Royal Botanic Garden, Glasnevin, is now producing six racemes, and is very effective. It is curious that we have not yet any plausible explanation of the use of the few differently coloured flowers which always appear at the base of the raceme.

The August number of Messrs. Cogniaux & Goossen's interesting *Dictionnaire Iconographique des Orchidées* contains figures of the following Orchids:—Aerides odoratum, A. suavissimum, Angræcum Chailluanum

Cattleya Warneri alba, Cypripedium superbiens, Dendrobium Farmeri Epidendrum Pentotis, Ionopsis paniculata, Lælia × cinnabrosa, Lælio-cattleya × bletchleyensis, Odontoglossum crispum, varieties Madame Valke and Stanley, and Selenipedium × Sedeni candidulum.

ODONTOGLOSSUM MIDGLEYANUM.—You ask, at page 287, for information respecting Odontoglossum Midgleyanum. It is a form of O. × Ruckerianum, and by no means a grand one. It was in the Mason collection at Bradford, and was named after the grower. Mr. E. Ashworth bought it after Mason's death, and I saw it bloom in the Ashworth collection on May 13th, 1899.

DE BARRI CRAWSHAY.

ORCHID PORTRAITS.

CATTLEYA × PITTIANA, J. WILSON POTTER'S VAR.—*Gard. Chron.* 1903, ii, p. 189, fig. 74; *Journ. Hort.*, 1903, ii, p. 281, with fig.

CYPRIPEDIUM × CONSTANCE.—*Journ. Hort.*, 1903, ii, p. 259, with fig.

CYPRIPEDIUM × MRS. JAMES E. ROTHWELL.—*Amer. Gard.*, 1903, p. 462, with fig.

DISA RACEMOSA.—*Journ. Hort.*, 1903, ii, p. 213, with fig.

EULOPHIELLA PEETERSIANA.—*Rev. Hort.*, 1903, pp. 403, 404, fig. 161, and plate.

LÆLIO-CATTLEYA × IONA SOUTHGATE VAR.—*Garden*, 1903, i, p. 168, with fig.

PHAIUS × CHAPMANII SUPERBUS.—*Gard. Mag.*, 1903, p. 593, with fig.

ZYGOPETALUM × ROEBLINGIANUM.—*Gard. Chron.*, 1903, ii, p, 227, fig. 93.

CORRESPONDENCE.

(Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.)

A.C.—Clearly a form of Cattleya Gaskelliana, of which a note appears on another page. You need not hesitate to send in cases of doubt.

T L.M.—The promised notes will be most acceptable.

Photographs received, with thanks, C. M., J. R., L. F., H. B., G. W.

Several notes are unavoidably postponed till next month.

ERRATA.

Cattleya × Pittiana, in the report of the Manchester Orchid Society, at page 269, was given as a hybrid from C. gramiloso and C. Rex. This is incorrect, and should be amended to C gramulosa and C. Dowiana aurea.

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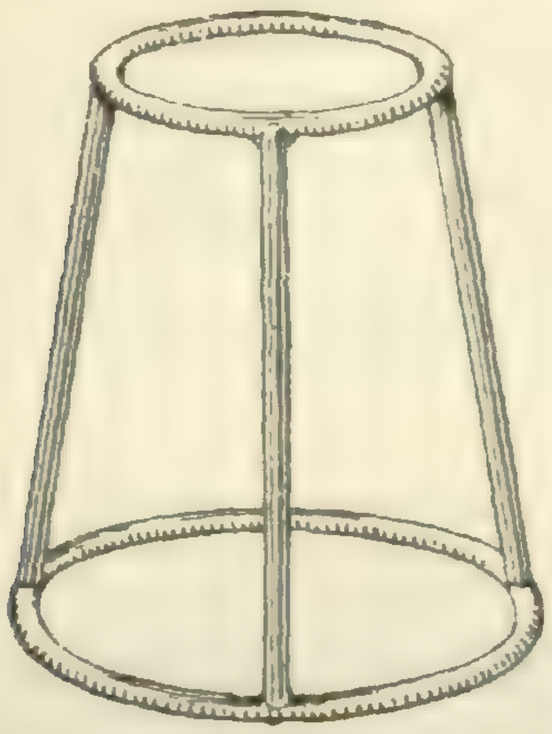

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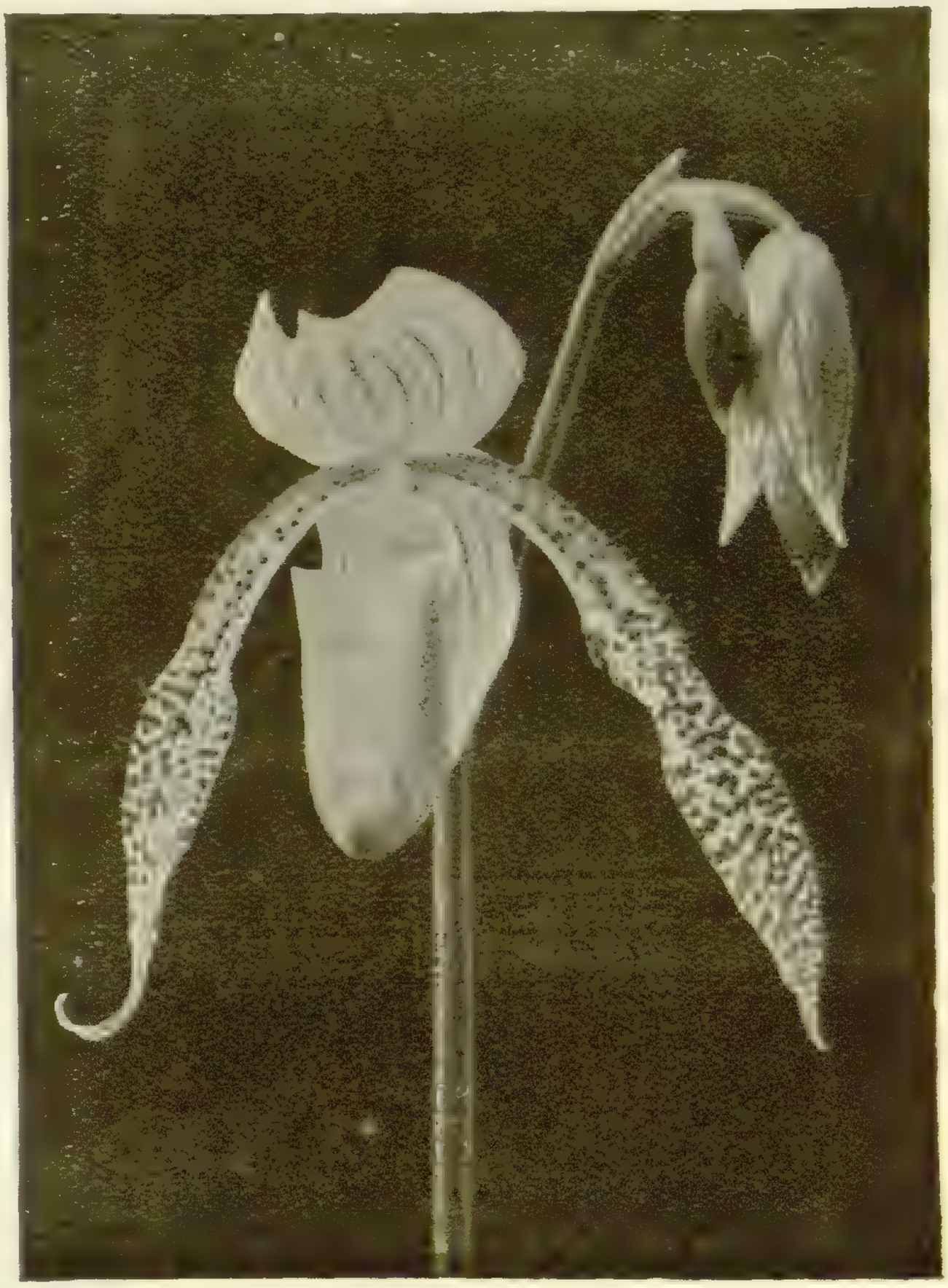

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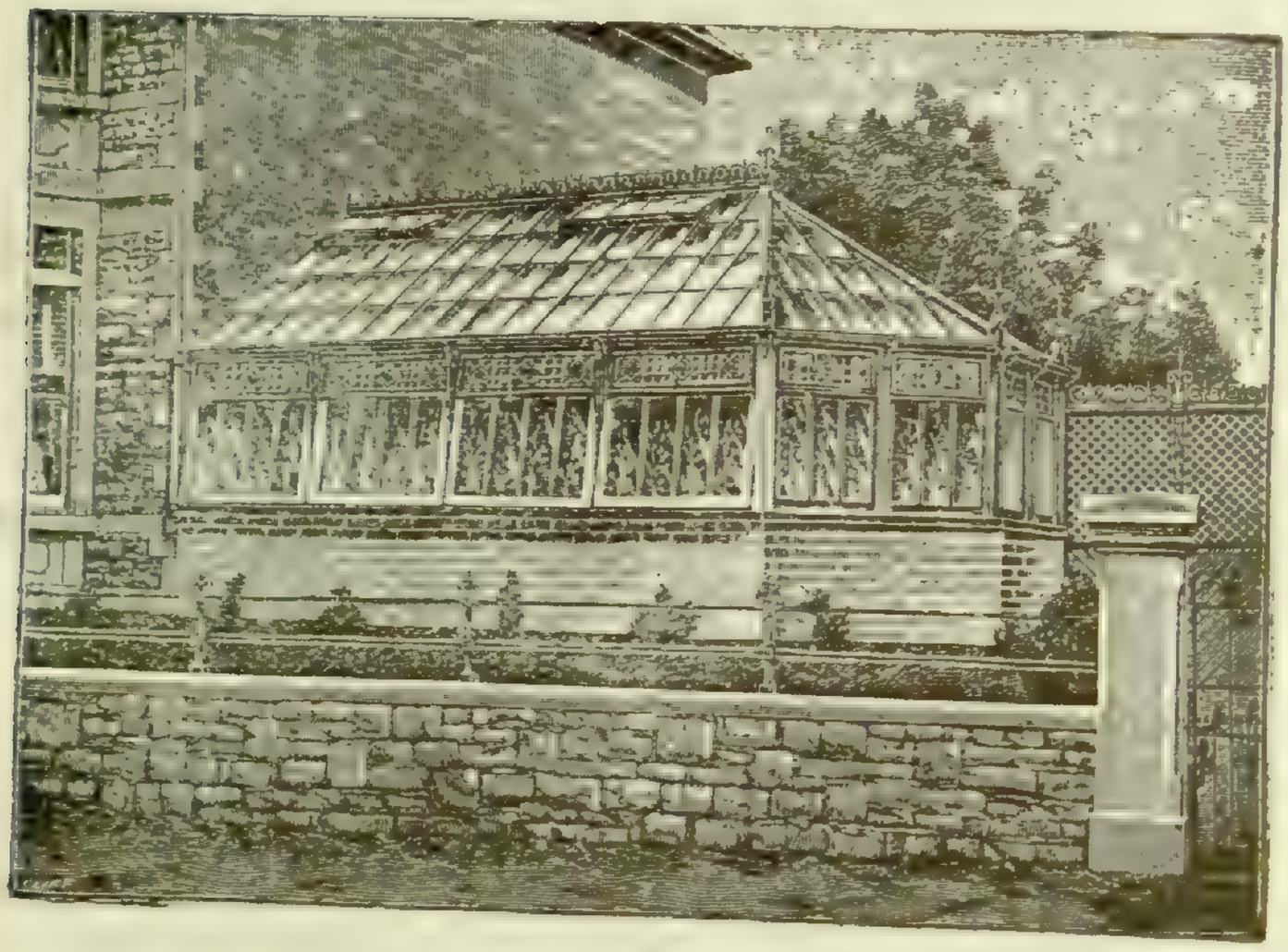

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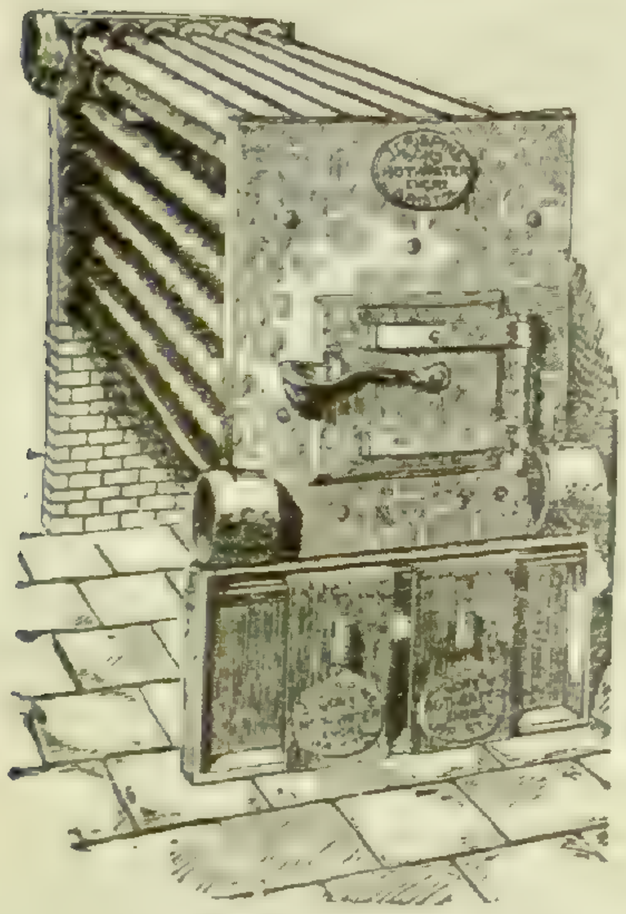

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THE HISTORY OF ORCHID CULTIVATION.

(*Continued from vol.* x, *page* 304.)

SEVERAL interesting novelties were described and figured in the *Gardeners' Chronicle* for 1848, and among them two species of Phalænopsis. P. grandiflora (p. 39, fig. 1) was described as a Javan species, introduced by Messrs. Veitch, and it is remarked that "a small plant of this noble epiphyte was exhibited on the 7th of September in the last year by J. H. Schröder, Esq., of Stratford Green, when it received the Silver Banksian Medal. It was not supposed to be a distinct species at that time from the well-known Phalænopsis amabilis, but was regarded merely as a fine variety." It is then pointed out how it differs from the Manila plant, and Lindley also alluded to notes by earlier authors, and the probability that other species remained to be discovered, but it is very curious that when he detected the differences between the Javan and Philippine plants he should have transposed the names, and originated a confusion which has hardly yet been completely rectified in gardens. As a matter of fact this plant is the type of the genus Phalænopsis, which was established by Blume, in 1825, to include the Cymbidium amabile of Roxburgh, and the Epidendrum amabile of Linnæus, the latter being described as long previously as 1753 (*Sp. Pl.*, ed. 1, p. 953), being based on a specimen collected by Osbeck on New Island, at the western extremity of Java, and sent to Linnæus. It appears to have been first discovered in the Island of Amboyna, by Rumphius, who gave a figure and description in his *Herbarium Amboinense*, under the name of Angræcum album majus, as long previously as 1650. The name Phalænopsis amabilis is now very properly applied to the original plant, and the Philippine species so unfortunately confused with it is now known as P. Aphrodite.

The second species of Phalænopsis mentioned above was P. rosea, which was figured and described (*Gard. Chron.*, 1848, p. 671) as "a very unexpected addition to the genus Phalænopsis, of which it has exactly the habit. The flowers are small, numerous, and arranged in a loose spike. The lip wants the tendrils so remarkable in P. amabilis and grandiflora, instead of

which it is bright rose colour, and almost the shape of a trowel. It was found in Manila by Mr. T. Lobb, who sent it to Messrs. Veitch."

Another interesting novelty was Cattleya lobata (p. 403, with fig.), which flowered with Messrs. Loddiges in 1847. It was imported from Brazil, and is now known as Lælia Boothiana. Oncidium phymatochilum, called the "Long-tailed Oncid.," was also described and figured (p. 139). Lindley remarked :—"The plant is common in collections under the name we have adopted, but the origin of which we have failed to discover. It is a very pretty species, and much more worth having than many of the yellow-flowered Oncids. . . . . The sepals and petals are long and narrow, like those of a Brassia. . . . . We first received it from the collection of the late Mr. Clowes." It no doubt came from Brazil, which afterwards proved to be its native country.

The beautiful Vanda suavis was also described for the first time (p. 351), Lindley remarking :—"A specimen of this charming plant was exhibited by Messrs. Veitch on the 4th April, in the meeting room of the Horticultural Society. . . . The fragrance, after the flowers have been brought into a living room, is delicious ; we have preserved a flower in a fresh state for nearly three weeks. It is said to have come from Java."

Here, also, we find the first reference to a tropical hybrid Orchid that we know of. At p. 159 Lindley figured and described what he called "the purple-stained Oncid.," Oncidium luridum var. purpuratum. He remarked :—This is the finest variety of the lurid Oncid. yet seen. It has the hard spotted leaves of that species, and the same habit. But the sepals and petals are richly speckled with purple, and the lip is as rich a crimson as that of Mr. Lance's Oncid. *It looks, in fact, as if it were a cross between the two* (the italics are our own). It is slightly and agreeably aromatic. The annexed cut was taken from a fine specimen which flowered with Messrs. Loddiges in September last." It is rather curious that when some three years later he again described and figured this plant, under the name of O. hæmatochilum (*Paxt. Fl. Gard.*, i., p. 21, t. 6) he made no reference whatever to the possibility of its being a natural hybrid. He remarked :—"The accompanying drawing was made in September, 1847, from a plant in the possession of Messrs. Loddiges, and we believe it is found in their list under the provisional name of O. luridum purpuratum. They had imported it from New Grenada, but it does not occur among any dried collections which we have examined from that country." It looks as if Lindley had forgotten his own description and figure, and it is interesting to point out that this shrewd observation afterwards proved to have a foundation in fact, for it is now known that the plant is a hybrid between Oncidium luridum and O. Lanceanum (*O. R.*, iii., pp. 174, 175), and that it is a native of Trinidad, not of New Grenada.

We also find notices of a number of Orchid Sales, including 340 lots of Costa Rican Orchids, from Warscewicz, to be sold at Stevens' Rooms, a fresh supply of Guatemalan Orchids by the ship Agnes," Phalænopsis from Java, the long-tailed Cypripedium from Peru, which fetched £2 10s. to £9 15s., &c. The new Phalænopsis rosea fetched from £7 10s. to £20 9s. 6d. each, and the large-flowered kinds £3 3s. to £8 15s. each. In one case we find three hundred lots of various species realising an aggregate of £600 to £700.

Another interesting Orchid, which made its appearance in 1848, was the now familiar Lælio-cattleya × elegans, which was described and figured by C. Morren under the name of Cattleya elegans. It flowered in Belgium, with M. Verschaffelt, who is said to have received it from Santa Catherina, through his collector, François De Vos. Of course no one then suspected it to be a natural hybrid, and it may be mentioned as a curious circumstance that neither of its two parents, Lælia purpurata and Cattleya Leopoldi, were described until some time afterwards.

Probably the most interesting development of the following year was the attention that was called to the possibility of raising Orchids from seed. In an article entitled "On growing Orchids from seeds" (*Gard. Chron.*, 1849, p. 549), Mr. D. Moore wrote:—"Within the last five years seedlings of the following species have been raised in the Orchid-house at Glasnevin, namely, Epidendrum elongatum and crassifolium, Cattleya Forbesii, and Phaius albus, the seeds of which all vegetate freely." One can easily imagine the interest with which an announcement of this kind would be received, and a few extracts from the article will show the position of the question at that period. Mr. Moore wrote:—

"At the present time there are few subjects connected with plant-growing on which there is less recorded information than that of growing Orchids from seeds, which appears the more remarkable when the great interest our ablest cultivators have taken in growing this singular tribe is considered, along with their tardiness of increase by division of the plant, and their intrinsic value. I am not aware that there is any case on record of hybridisation having been effected among Orchids, though there seems no doubt that such could be accomplished by careful manipulation, an inference I draw from reasoning analogically on experiments made here to get seed."

The seeds, when ripe, were scattered on the surfaces of the other Orchid pots, or on pots prepared for the purpose; after which constant shade, a steady high temperature, with abundance of moisture, were considered as absolutely necessary to secure success. In the course of eight or nine days after sowing, the seeds began to assume a darker colour, and evident signs of approaching vegetation might be perceived, which

increased until in a fortnight or three weeks the young radicle and cotyledon began to protrude. "From this period of their growth the young plants grow rapidly, and the rootlets lay hold of whatever material is supplied to them. If the seeds happen either accidentally or intentionally to be made to vegetate on bare wood, as in some instances has been the case here, the young roots extend themselves in different directions, adhering closely to the bark, and make great progress compared with the growth of the stems, thus affording beautiful examples of the manner in which epiphytical plants fix themselves so firmly on the higher boughs of lofty trees in tropical forests.

"The principal difficulty to contend with in rearing the young seedlings has been found to consist in their treatment during the first year, particularly the winter months, when they are very liable to perish, if anything approaching to extremes of moisture, drought, cold, or even heat be permitted; though a steady medium of all these requisites is necessary. The second year's growth has been one during which the plants made much progress, and the only two kinds which have been brought to a flowering stage have bloomed the third season. These are Epidendrum crassifolium and Phaius albus, the latter being now in flower, exactly three years from the sowing of the seeds."

This article brought a note from Mr. J. Cole, gardener to J. Willmore, Esq., Oldford, near Birmingham, in which he stated (p. 582):—"My employer informs me that Bletia Tankervillæ was some years since obtained from seed sown in common soil; also Epidendrum elongatum, sown on a block of wood covered with moss." But he then goes on to say, "I have sown other sorts of Orchids at various times and in different ways, but without success." He then goes on to speak of experiments he had made in hybridising Orchids, as follows:—"A few have been hybridised successfully here, so far as obtaining seed to all appearances perfect is concerned; and it has been sown, but it did not vegetate. Cattleya labiata was crossed with C. guttata, and swelled its pod; Calanthe veratrifolia with Bletia Tankervillæ; Dendrobium moniliforme with other Dendrobes; and Stanhopea Wardii with one of the other Stanhopeas."

Mr. Richard Gallier, gardener to J. Tildesley, Esq., West Bromwich, also described a very interesting experiment made by himself. He remarks (p. 661):—"Dendrobium nobile crossed with D. chrysanthum produced me a pod of seed, and when the latter appeared to be ripe, I sowed it in three ways." The details need not be given, suffice it to say that two methods gave no result, but from the third five plants appeared, which seemed to be doing well until about four months old, when they were removed from under a bell glass and suspended from the roof of the house, a change which proved disastrous, for "the leaves withered and hung down, and in

about three weeks they were all dead." The result was unfortunate, and we believe that this cross has not yet been successfully raised.

We also find a very interesting account of the celebrated collection of M. Pescatore, at Celle-Saint-Cloud, near Paris (page 535), from which we may extract the concluding paragraph:—"M. Pescatore's collection of Orchids consisted, in 1848, of 640 plants: these comprised 350 species and varieties. Since then it has been augmented, more especially by the collection of M. Quesnel, of Havre; so that there are now upwards of 2,000 plants, and the number of species and varieties amount to 700. The plants are grown on pieces of peat soil, in vases and pots placed on the beds and shelves: on pieces of suspended wood, or on the branchy trunks of trees. All the Orchids were in an excellent state of growth; their good condition and vigour do great credit to the intelligence and skill of Mr. James Craig, who is specially entrusted with their cultivation. In this splendid collection 166 different species had flowered between the first of January and the end of July, 1848."

Orchids were evidently increasing in popularity, for among numerous other notes, of sales, cultural matters, &c., we find a note entitled "Orchids for the Million," by "Dodman," who suspects that "the time is not far distant when we shall have many of the more easily cultivated Orchids (Dendrobium nobile for instance) the Cypripediums, &c., &c., going about in the baskets of the itinerant flower sellers in London, and as easily grown as Cactus speciosissimus."

No less than nineteen Orchids were figured in the *Botanical Magazine* during this year, most of them being already known, but two were interesting novelties, both of which flowered at Kew, namely the handsome Miltonia spectabilis var. purpureo-violacea (t. 4425), and Eriopsis rutidobulbon (t. 4437), sent from New Grenada by Purdie.

(To be continued.)

PHAIOCYMBIDIUM × CHARDWARENSE.

IT may be remembered that last year a very remarkable hybrid from the collection of G. F. Moore, Esq., Bourton-on-the-Water, was exhibited under the above name (*O.R.*, x., pp. 117, 190). Two flowers have now been sent by Mr. Moore's present gardener, Mr. W. Page, with the following note:—"The enclosed is a supposed hybrid between Phaius Wallichii × Cymbidium giganteum. It has been shown at a R. H. S. meeting, and there was some doubt as to its parentage by those who saw it there, but according to the records of our seedlings, it must be correct, because it is the only Phaius cross recorded, and Mr. Moore has had no other Phaius in his collection until recently. The plant, so far as I can see, is identical with

P. Wallichii; there is nothing in the growth of the plant to suggest Cymbidium, but the flower certainly looks to me as though it has Cymbidium blood in it. We have about two dozen seedlings, three of which are in flower, and are the same as the samples sent." The two flowers sent are typical Phaius in structure, but one is much smaller than the other, the sepals measuring respectively $1\frac{3}{4}$ and $2\frac{1}{4}$ inches, while the spur of the larger is five lines long, and of the other only three lines. The sepals and petals are deep yellow at the back, slightly suffused with light coppery brown in front in the smaller flower, and more strongly so in the larger. The ground colour of the lip is deep yellow, striated throughout on the inside with deep maroon brown. The margin is distinctly undulate, while on the disc of the larger flower occurs a pair of fleshy keels, and a few short hairs on the surface of the lip. Mr. Page has pollinated one of the flowers with Cymbidium giganteum, to see whether a second crossing will not bring out more of the Cymbidium character. It is interesting to note that there are also seedlings obtained from Zygopetalum × Mackayi × Cymbidium giganteum, and Mr. Page remarks that they seem large enough to flower at any time. The event will be awaited with curiosity, as it may prove to be another case of Monolepsis. We should like to see an attempt made to reverse these crosses.

It must now be added that the plant was exhibited at the R. H. S. Meeting on October 27th last, and was awarded a First-class Certificate. It was like a strong Phaius Wallichii, with spikes over a yard high, and was very effective.

REVERSION IN ODONTOGLOSSUMS.

A FLOWER of a most interesting Odontoglossum has been sent from the collection of De Barri Crawshay, Esq., Rosefield, Sevenoaks. It is from the plant exhibited at the R.H.S. meeting on October 13th last, as a hybrid between O. crispum and O. × Wilckeanum which had completely reverted to O. crispum. Its history, given by Mr. Crawshay (*Gard. Chron.*, 1903, ii., p. 253), may be summarised as follows:—It is the result of crossing a good form of O. crispum with the pollen of O. × Wilckeanum. It was crossed on March 5, 1893; the seed sown on March 3, 1894; opened six blooms on August 13, 1900; and again thirteen blooms on September 23, 1903. I believe this plant to be the first crispum ever raised. It is my first result, but when it first bloomed in 1900 I could hardly credit the gigantic backward movement made by Nature to preserve her originals, and hoped that later on it would show clear traces of hybridity. It is of good round form and medium size, but has now, as in 1900, not a trace of the yellow ground of Wilckeanum, and, excepting five small pin-head spots in four sepals, not

a trace of the blotching of that hybrid in all its thirteen blooms. It is blooming on the sixth bulb of good size, and it is impossible to expect any alteration of colour or markings. I have the Wilckeanum still, but not the crispum; but I remember it perfectly.

The flower sent would certainly be taken for a good round form of O. crispum. The petals are an inch broad by 1½ inches long, and clear white, while the sepals are 11 lines broad, tinged with rose, especially at the back, and there is a small purple spot in the centre of the dorsal sepal. The lip is 1 inch long by 9 lines broad, and the deep yellow disc is about half as broad as the limb, with the usual light brown streaks on either side of the claw, and a few slight traces of them on the crest. There are certainly minute teeth on the side lobes of the crest, but not larger than in some of the imported forms referred to O. crispum. The column wings are each broken up into about four prominent teeth, about a line long, with a few traces of smaller ones. Altogether we cannot find a single character which would suggest hybridity, any more than in many of the imported white forms which are referred without question to O. crispum.

Mr. Crawshay remarks:—"This the second plant, and from a totally different crossing, that proves the great prepotency of O. crispum, when unspotted, as the seed-bearing parent to revert to itself. I failed to raise more than this one plant from this cross," but he also alludes to the seedling, O. crispum × crispum Crawshayanum, exhibited at the R.H.S. meeting held on March 10th last, as follows:—"That plant proved reversion even beyond my expectation, for a worse form of O. crispum could hardly be expected, and all trace of the great blotches of O. c. Crawshayanum was wiped out by the retrograde movement effected by Nature."

Mr. Crawshay must be congratulated on his persevering attempts to solve a very interesting and difficult biological problem, and on his success in flowering the first artificially raised O. crispum seedling, but it is difficult to accept the conclusions to which these experiments point, because they are not in complete accord with parallel cases in other groups. Mr. Crawshay, however, regards them as straws that show which way the wind blows, and adds:—"Perhaps some day I may have a sheaf of them, or some other raiser may forestall me. I hope that if he should do so he will publish his results. Perhaps considerations of value of unbloomed seedlings may prevent these failures coming to light, but I consider that the great value of 'blotched crispums' is more than ever assured by these failures to produce them artificially."

We do not anticipate that the various attempts to produce blotched crispums artificially will all end in failure, but whatever the result we hope to have the main facts faithfully recorded.

MAXILLARIA PULLA.

THE above interesting rarity has at last appeared in cultivation, a Maxillaria received some time ago from Popayan having flowered in the Royal Botanic Gardens, Glasnevin, and proved identical with the dried specimens collected by Schlim over half a century ago. The species was described in 1854 (Lind. & Rchb. f. in *Bonplandia*, ii, p. 280), from specimens collected at Aspasica, in the province of Ocana, at 5,000 feet elevation, in 1850. The flowers were described as yellowish rose, rayed with red. Soon afterwards Wagener met with it at San Pedro, at about the same altitude. It is a very distinct little plant, having small globose slightly compressep pseudobulbs, about half an inch long, each having a single lanceolate petiolate leaf, from five to nine inches long; and the slender scapes, some two to four inches long, are borne from the axils of imbricating sheaths at the base of the pseudobulbs. The living flower may be described as having the ground colour straw-yellow, with five light red-brown stripes on the sepals and petals, and eleven much darker ones on the nearly entire lip. The sepals measure about nine lines long. It is quite a small plant, and the striped flowers give it a very distinct appearance.

R. A. ROLFE.

"'A PORTRAIT FLOWER.—Suspended from the roof in one of the Orchid houses at the Royal Gardens, Kew, a curious plant is to be seen in flower. The flowers are large, measuring six inches from tip to tip, but it is the lip which is specially noticeable and remarkable. On this lip by a series of furrows and marks it is that a resemblance to the well-known face of Punch is noticeable, the eyes, nose, cheek furrows and chin being so clearly depicted that they are immediately recognised by all beholders.' The above is the story given by a daily contemporary concerning an Orchid which seems to have been Coryanthes macrantha, which flowered lately." —*Gard. World*, Oct. 17, p. 880. It appears that a number of people visited the house to see the "Punch Orchid," whose identity, by the way, was not revealed in the original paragraph. Those who know the remarkable bucket-shaped lip of this Orchid may wonder where the resemblance to "Punch" comes in, but it appears that it resides, not in the lip, but in the unopened bud. Owing to some unexplained cause the bud damped off just as it reached its full development, and consequently never opened, and in this stage it remained on the plant for several days. The confusion of an unopened bud with the lip is somewhat amusing, but we shall look out for "Punch" in future, as it is said that the resemblance is sufficiently obvious when once pointed out.

HEXADESMIA CRURIGERA.

THE annexed illustration represents a very pretty and floriferous little Orchid from the rich collection at the Royal Botanic Gardens, Glasnevin, under the care of Mr. F. M. Moore. The photograph was taken by Mr. Leo Farmar, and is considerably reduced. Hexadesmia crurigera is a native of Central America, which was introduced from Guatemala, and flowered in the collection of the late James Bateman, Esq., in 1843, being described by Lindley (*Bot. Reg.*, 1844, Misc., p. 2). It afterwards appeared in the collection of Consul Schiller, at Hamburg, and was figured by Reichenbach (*Xen. Orch.*, i, p. 168, t. 59, fig. 1), and still later in the

FIG. 49. HEXADESMIA CRURIGERA.

Refugium Botanicum (vol. ii, t. 92), when it was described by W. Wilson Saunders as a very interesting and curious Orchid, producing its flowers very freely. It was said to thrive on a block of wood or cork, with a little moss, in the temperature of the Mexican house, being kept moderately dry when at rest. It has also been collected in Costa Rica. It grows in dense tufts, and the pseudobulbs are fusiform in shape, and bear a pair of very narrow leaves at their apex. The flowers are borne in short terminal racemes, and are campanulate, and 3½ lines long, with the apex of the column dark purple. It is a charming little specimen, and shows what the species is capable of when properly cared for.

ORCHIDS IN SEASON.

Two most beautiful hybrids are sent from the collection of Capt. G. L. Holford, Westonbirt, Tetbury, by Mr. Alexander. Cattleya × Iris Westonbirt var. (bicolor × Dowiana aurea) has the sepals and petals of a clear light yellow, quite different from the bronzy tint seen in the typical form (which is also flowering in the collection), while the lip is brilliant rose-purple, except at the extreme base, which is deep yellow, also the small auriculate side lobes. The flower is also very large, measuring 5¾ inches across its broadest diameter, while the petals measure 1¾ inches and the lip 2 inches across. It had been expanded five weeks when sent, and remained fresh for several days longer. The contrast of colour is very striking, and it should be added that the plant was purchased from Messrs. Charlesworth & Co. last year. The other plant is C. × mollis var. Lois (Gaskelliana × superba), from the plant which received an Award of Merit from the Royal Horticultural Society in November, 1901. It is most like C. Gaskelliana in shape, in the nearly entire lip, and the mauve-lilac sepals and petals, but there is an increased amount of deep orange yellow in the lip. It is difficult to trace the superba influence in the flower, and we have not seen the plant. It is certainly very handsome.

A good form of Odontoglossum Pescatorei is sent from the collection of J. H. Grogan, Esq., Slaney Park, Baltinglass, Co. Wicklow. It is from a small plant now flowering for the first time. The flower is white and unspotted, with the usual rosy tinge on the sepals. A very good form of Paphiopedilum Charlesworthii is also sent, having the dorsal sepal 2¾ inches broad, and prettily marbled with rose and white.

A good form of Miltonia Regnellii, called Gatton Park var., is sent from he collection of Jeremiah Colman, Esq., Gatton Park, Reigate, by Mr. Bound. The sepals and petals are deep brownish yellow, and the lip purple. A curious flower of Cattleya bicolor, having only two sepals and two petals, is also sent. We have seen this curious dimerous arrangement in several other Cattleyas.

Several beautiful flowers are sent from the collection of R. I. Measures, Esq., Cambridge Lodge, Camberwell, by Mr. Smith. Four of them are hybrids of Cattleya Bowringiana, which are invaluable for autumn blooming. Cattleya × Mantinii nobilior is a beautiful spike of ten flowers and C. × Wendlandiana, a rather larger and darker form with six flowers. C. × Mrs. J. W. Whiteley may be compared to a fine form of C. × Mantinii. The fourth hybrid is C. × Minerva (Loddigesii × Bowringiana), and has light rose-purple sepals and petals, and a very much paler prettily undulate entire lip. It is a very pretty hybrid, bearing a marked resemblance to C. Loddigesii in colour, and in the shape of the sepals and

petals. The inflorescence bore seven flowers. A good flower of the handsome Lælio-cattleya × Henry Greenwood is also sent, together with a handsome flower of Cattleya Dowiana, in which the petals are strongly veined with rose except down the centre, as in the form called C. Dowiana Rosita.

A two-flowered inflorescence of the handsome form of Paphiopedilum × Mabeliæ known as Lord Derby is sent from the collection of T. Statter, Esq., Stand Hall, Whitefield (gr. Mr. Johnson). The petals are very broad and beautifully spotted, and the combination of the characters of P. superbiens and P. Rothschildianum has resulted in one of the handsomest hybrids in the genus.

Dendrobium Phalænopsis is now making a magnificent show in many collections, and we have received four beautiful forms from the collection of W. Farrer, Esq., Thornburgh House, Leyburn, Yorks (gr. Mr. Carnell). The first is a medium-sized flower, bright rose-purple throughout, with the side lobes and base of the lip intense blackish purple. The second is very large and much lighter in colour, the segments shading down to rosy lilac towards the base, and the lip being rather darker in colour than the other segments. The third is a pretty shade of rosy lilac, becoming nearly white at the base of the petals, while across the middle of the lip extends a zone in which the veins are rich purple-crimson in colour. The fourth is blush white, with a few traces of rose-purple at the tips of the petals, and the front lobe of the lip veined with rose-purple, most distinctly so in the centre, the side lobes and base being quite white. Two very fine forms of Cattleya labiata are also sent, one having the petals as much as 4 inches long by $2\frac{3}{4}$ inches broad, and fairly typical in colour, while the other is rather smaller and more richly coloured, the whole of the front lobe of the lip being of the richest purple-crimson. All the flowers show evidence of excellent culture.

MASDEVALLIA TOVARENSIS, now advancing for flower, is a most useful and beautiful species for cutting; and, in order to see the flowers at their best, the plants should now be given rather more warmth than the coolest house affords. They will open more freely, and be of a purer white. Wherever the flower spikes are left on, these produce blossoms again next season, but this, of course, necessitates the wiring of the individual flowers when cut. But if the stems and all are removed there will generally be plenty more produced, as it is very free in this respect. The flowers may, if needed, be left upon the plants until they fade without injury to the latter; and as several spikes, containing each three or four flowers of the purest white, are produced on quite small plants, a dozen or two good specimens will make a very fine display.—*Journal of Horticulture.*

CALENDAR OF OPERATIONS FOR NOVEMBER.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

THE temperature for the different departments will continue much the same as advised for last month. If any difference is made the tendency should naturally be to slightly decrease rather than to increase the temperatures. The climatic conditions of this month are usually of such a varied character, that the patience and skill of the most talented cultivator are tried to the utmost. Bright frosty weather does not seriously affect the grower, but what troubles him most is the intermittent spells of dull, moist, and oftentimes warmer weather. During a spell of such weather it is an exceedingly difficult matter to maintain a suitable atmosphere in the houses, and damping down and other watering operations have to be carried out in a very careful and judicious manner, or harm will soon follow. The thermometer may rise a trifle above the regulation standard, and air must be admitted in fairly large quantities, through the bottom ventilators, to assist the heating apparatus in dispelling the superfluous moisture. As the year wanes, a gradual decrease in the temperature recorded in last month's Calendar should follow, being always careful not to employ more fire-heat than is absolutely necessary. Too much emphasis cannot be laid on this advice, for other conditions being favourable, there is nothing more prejudicial to plant life than excessive fire-heat. If by any chance the temperature rises above the needed point from this cause, it is not advisable to throw a lot of water about the house to counteract its drying influences, but rather admit a trifle more air, always through the bottom ventilators. This course, however, cannot be followed if the outside conditions are not favourable to the admission of air; and then one has to be content with turning the valves off, to allow the temperature to recede.

The lovely Cattleya labiata will, of course, be the greatest attraction this month. This grand old species, now displaying its richly coloured blooms, will need very careful attention, after the flowers are removed. In the first place the sheath must be cut away close to the apex of the pseudobulb, to prevent decay; secondly, the plants should be kept in a temperature ranging between 60° and 65°, well exposed to the light, and be given very little water, or secondary growths will make their appearance, and may be the much-dreaded disease "black-rot" also. Cold draughts must not be allowed to reach them, and do not place them too near the glass roof. If the atmosphere be kept a trifle drier than usual the blooms of this Cattleya will remain perfectly fresh for a period of four or five weeks, which is of the greatest importance to those who have to supply choice flowers for cutting purposes.

Another specially desirable Orchid which blooms at this season in

Cattleya Bowringiana, and although its individual flowers are smaller than the majority of Cattleyas, yet a plant with several spikes, each producing numerous flowers, is a most attractive sight. This species has usually proved to be of easy culture, no other treatment being necessary than that given to Cattleyas generally.

Those who have plants of the beautiful and now somewhat rare Cattleya Lawrenceana should pay special attention to them at this time of the year, as they are generally late in starting into growth, and the bulbs are only half formed when the dull days commence. The plants will be greatly benefited by being placed at the warmest end of the house, and raised, so that they may be brought nearer the light, where, if properly attended to, the bulbs quickly finish up, and soon become thoroughly ripened. This Cattleya will take plenty of water during growth, provided the material used for the roots to grow in is of a very open nature, through which the water may pass freely. Care must also be taken that no water either from drip or syringe be allowed to remain in the young growths, or rot and decay will sooner or later appear, and cause, perhaps, the total loss of the plant. When growth is completed very little water is required to keep the bulbs plump, but immediately the flowers commence to push up through the sheath more may be given. At no time should the plant be allowed to shrivel for want of moisture, neither should it be kept too wet, especially after flowering, or it will start into new growth instead of having a long rest.

Pleiones are amongst the few Orchids that have to be attended to this month. Most of these pretty species are natives of India, and grow chiefly on rocks in mountainous regions, and are commonly known as "Indian crocuses." Their flowering season extends from the end of September to the middle of November, and one species, P. humilis, blooms in the spring, consequently with the following species the flowering season is extended to a considerable length. P. lagenaria, P. maculata, and P. praecox are now in bloom with us here, and when care is taken that no water is allowed to settle on them they will last long in perfection, but if not kept free from moisture the blooms quickly damp off. Within a short time after flowering numerous young roots will be found to have started away from the base of the new growths, and it is at this particular time that the plants should be turned out of their receptacles, and after the greater part of the old soil has been removed from the roots they should be repotted in a compost consisting of equal proportions of good fibrous loam and peat, with a little chopped moss, a small quantity of powdered cow dung, and sufficient coarse sand or fine crocks to keep the whole porous when mixed together. It is quite immaterial whether shallow pans or pots be used, but for those who prefer to grow them hanging up close to the roof, pans are the most convenient. Whichever be selected they should be well drained, for being

fond of large quantities of water when the plants are in full growth it is necessary that the water should pass freely away. When everything is in readiness take a bulb, and with the old root form a little ball to aid in fixing the bulb firmly in the compost. Each ball should be so disposed that the growths as they advance have plenty of room to develop, and when completed will be placed evenly over the surface. The material should be raised slightly above the edge of the pan and mounted a little, though not too conically, or watering them in the early stages of growth will be a difficult matter without wetting the growths. After re-potting they should be placed on a shelf at the coolest and most airy part of the Cattleya or Intermediate house to enable them to get all the light available.

Water sparingly until the young growths are well advanced; but when the plants are thoroughly established they will take an almost unlimited supply, and an occasional dose of weak liquid manure water will be beneficial to them. Pleiones, when treated in accordance with their requirements, are very easy to cultivate, and producing, as they do, such beautiful little flowers at this time of year are very effective. They should be grown in the smallest Orchid collection. A complete account of the genus was given last month (pp. 289-292).

Lælia pumila, now in bloom, is not only remarkable for its neat and highly-coloured flowers, but also for their large size, compared with the diminutive growths from which they proceed; and a large per centage of the plants produce twin-flowered scapes. It is an easy Orchid to grow, when planted in shallow pans or baskets, in the ordinary Orchid mixture, and hung up on the shadiest side in the Cattleya house, and given a fair supply of water. L. Dayana has just gone out of bloom, but should still be given water, as the leaves soon turn yellow if the plants are allowed to remain dry long. The flower spikes of Lælia autumnalis and other Mexican species, such as L. albida, furfuracea, Eyermaniana, and Gouldiana, are developing their somewhat succulent flower spikes. Very little water will be needed by them when the flowers have gone over, in fact when the bulbs have thoroughly matured they will go a month or six weeks without water. The spikes of Lælia anceps and its varieties are all well advanced, and in due time will display their lovely blooms. It is a good plan to draw a wet sponge up the spikes now and again to keep them clean, and to prevent the upper bracts from sticking to the flower buds. Until the flowers are over the plants must be kept fairly well supplied with water, but afterwards a small quantity will suffice until growth commences. These Mexican species are very effective during the autumn and winter months.

ORCHIDS FROM HIGHBURY.

HYBRID Orchids are now making a fine show in the collection of the Right Hon. J. Chamberlain, M.P., Highbury, Birmingham, and a beautiful series has been sent by Mr. Mackay. Cattleya × Ariel (Bowringiana × Gaskelliana) is a pretty rosy lilac hybrid about intermediate in shape, but most like C. Gaskelliana in colour. C. × Minucia, derived from C. Loddigesii and C. Warscewiczii, is a particularly well developed flower, the petals being over three inches long, C. × mollis is a very good variety raised from C. Gaskelliana alba × C. superba splendens. The sepals and petals are light rose-purple in colour, and the front of the lip deeper purple, while the throat is yellowish white, with a deep yellow area on the disc. C. × Pandora (bicolor × Trianæ) is a handsome thing, with bright rose-purple sepals and petals, most like the latter in shape, and a lip much resembling C. bicolor, except in having light yellow auriculate side lobes, while the disc is bright yellow, and the front lobe of the most intense crimson-purple. Lælio-cattleya × Mandarin (L. crispa × C. granulosa Schofieldiana) is a striking thing, most resembling the latter in its very deeply three-lobed lip, though nearer to L. crispa in the shape of the sepals and petals. Lastly may be mentioned flowers of L.-c. × Leeana and L.-c. × corbeillensis; and respecting the latter Mr. Mackay remarks that a great many are in flower, and they show a good deal of variation. The cross was made by Mr. Chamberlain a long time ago, the recorded parentage being C. Harrisoniana × L. Dayana. Six forms are sent, and in each case the keels of the lip are more prominent than in L.-c. × Leeana, while the influence of L. Dayana is seen in the shape and colour of the lip. The corrugated disc of C. Harrisoniana is very well marked; in one case the bright yellow area extending right across to the margins of the side lobes, in others these have a purple margin, while the front lobe is more or less deeply stained with purple. It is a very variable and pretty little hybrid.

CATTLEYA × BRABANTIÆ.

"THE work of hybridisation in Orchids goes bravely on, notwithstanding the remonstrances of those who deplore the confusion that it is likely to create amongst their favourite flowers." Thus wrote the Editor of the *Floral Magazine*, in 1867, when figuring Cattleya × Brabantiæ (t. 360), the third of Messrs. Veitch's fine series of hybrid Cattleyas, and now the plant has been almost lost sight of, although it received both a Silver Banksian Medal and a First-class Certificate in July, 1863, when it flowered for the first time. It was shown as Cattleya × hybrida, which Lindley changed to C. × Aclandi-Loddigesii, remarking, "as the name is not sufficiently

distinctive from other hybrid Cattleyas, it is better to apply to it the joint titles of its parents." It was afterwards dedicated to the Countess of Brabant, and exhibited at the June Exhibition of the Royal Botanic Society, at Regent's Park, when it also gained a First-class Certificate. A flower has now been sent from the collection of the Right Hon. J. Chamberlain, M.P., which differs somewhat from the original figure, as the sepals and petals are more distinctly suffused with light purple, and the spots on the petals are larger, less numerous, and deep purple in colour. It shows its origin very clearly, as the lip and spots on the petals show the influence of C. Aclandiæ. C. Loddigesii was the seed parent. It was very interesting to see this old plant again.

CATTLEYA × HARDYANA.

THE question of the longevity of Orchids has often been discussed, and now some interesting information respecting the original Cattleya × Hardyana comes to hand. At a meeting of the Manchester and North of England Orchid Society held on October 16th last a plant of this superb natural hybrid was exhibited by T. Statter, Esq., Stand Hall, Whitefield (gr. Mr. Johnson), and was awarded both a Silver Medal and a Cultural Certificate. A week later Mr. Statter sent us the three-flowered inflorescence, stating that it was part of the original plant, which flowered for the first time in the collection of the late George Hardy, Esq., of Timperley, in 1884. He adds:—"I have now three plants, all parts of the same, and it is the best of the Hardyanas I have ever seen. I once sent you a photograph of the original plant, with very long hanging roots, and you will see that the variety can be grown for twenty years. It is certainly a magnificent form, and the petals measure $3\frac{3}{4}$ inches long by over $2\frac{1}{4}$ inches broad, while the front lobe of the lip measures $2\frac{1}{2}$ inches across. The sepals and petals are light rose-purple, and the front lobe of the lip of the richest purple-crimson, while the sides of the lip are deep yellow, becoming paler near the margin, which is tinged with light purple. The yellow veining is chiefly confined to the disc. The photograph referred to by Mr. Statter was reproduced as the frontispiece of our fifth volume, and as it represents the identical plant it may be interesting to repeat the figure. On that occasion it also bore a three-flowered inflorescence. The root development is certainly remarkable, and it was necessary to omit about fourteen inches at the base, or the page would not have been large enough. The illustration is about one-eighth natural size. Mr. Statter, and his able gardener, must be congratulated on their success with this beautiful plant, which is not one of the easiest to grow. There seems no particular reason, apart from accident, why the plant should not be grown successfully for an indefinite period, as the parts

FIG. 50. CATTLEYA × HARDYANA.

are continually renewing themselves, and the stock can occasionally be increased by division, though this is a very slow process.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of this Society was held at the Drill Hall, Buckingham Gate, Westminster, on October 13th, when there was a very good display of Orchids, though not much in the way of novelty.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), staged a very fine group and was awarded a Silver Flora Medal. It contained good examples of Odontoglossum Harryanum, O. grande, O. luteopurpureum, O. crispum, Lælia præstans, Cattleya Dowiana aurea, a fine example of C. × Mrs. Pitt having two spikes of nine flowers, C. × Mrs. J. W. Whiteley, also with nine flowers, many fine C. labiata, the handsome C. × Pittiana, Lælio-cattleya × Adolphus superba, Sophro-cattleya × eximia, Vanda Kimballiana, Oncidium ornithorhyncum, and its variety album, hybrids of Cypripedium Rothschildianum, Maxillaria picta, Nanodes Matthewsii, Dendrobium bigibbum, D. Victoria-Regina, Miltonias, &c.

The Rt. Hon. Lord Rothschild, Tring Park (gr. Mr. Hill), exhibited a superb specimen of Lælio-cattleya × Nysa superba, with eleven large flowers and three buds, a Cultural Commendation being awarded.

J. F. Alcock, Esq., Northchurch, showed a fine form of Odontoglossum grande.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed a good plant of Odontoglossum crispum growing well in a glazed earthenware table salt jar without a hole in the bottom, also a curious hybrid derived from of O. crispum × Wilckeanum, in which the influence of the pollen parent could not be traced. It is fully described on page 326.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), showed a plant of Lælia × juvenilis superba (Perrinii × pumila) having two flowers, bright purple-rose in colour, with a much darker lip.

M. E. Zollinger-Jenny, Zurich, showed a remarkable hybrid between Cypripedium Spicerianum and C. Victoria-Marie, most resembling the former in habit, but the dorsal sepal greenish, with a conspicuous white upper portion, and a downy purple line on the back.

Messrs. Sander & Sons, St. Albans, gained a Silver-gilt Flora Medal for a very fine group, containing Cattleya × Gauthieriana (Schroederæ × Leopoldi), a handsome blush-white flower marked with purple, and the broad front lobe of the lip rosy lilac; some good C. labiata, C. × Pheidona, C. Gaskelliana Helen, Lælio-cattleya × Henry Greenwood, L.-c. × Rubens, the handsome L.-c. × Normani superba, fine L.-c. × bletchleyensis, L.-c. × luminosa, L.-c. × Rubens, Cypripedium × Leander, C. × Miss Louisa Fowler, C. × Argo-Rothschildianum, a good C. insigne Harefield Hall

variety, the distinct C. × Lamonteanum (Calypso Oakwood var. × Rothschildianum), Vanda cœrulea, Odontoglossum cristatum, a finely blotched O. crispum with a cluster of yellowish-brown markings on the segments, a fine Miltonia vexillaria Leopoldi, and others.

Messrs. J. Veitch & Sons, Chelsea, staged a fine group, for which a Silver Flora Medal was awarded. It contained 35 fine forms of Cattleya labiata, C. × Enid, C. × Wendlandiana, C. × Mrs. J. W. Whiteley, varieties of C. × Mantinii, Lælia × Mrs. M. Gratrix, Lælio-cattleya × Nysa, L.-c. × Wellsiana, L.-c. × Haroldiana, L.-c. × bletchleyensis, the handsome L.-c. × Empress Frederick var. Leonata, L.-c. × Aphrodite, and others. An Award of Merit was given to Lælio-cattleya × Norba superba (C. Mossiæ × L. xanthina), a very pretty variety, having the front lobe of the lip soft rosy lilac, and the rest of the flower yellow.

Messrs. H. Low & Co., Bush Hill Park, received a Silver Banksian Medal for a fine group, containing Cattleya × Maroni, C. labiata, a handsome C. × Mantinii, Lælio-cattleya × intermedio-flava, Lælia pumila, Dendrobium formosum, Trichopilia fragrans, Lycaste Skinneri alba, and a well-flowered plant of the pretty little Masdevallia Laucheana, whose history is given on page 342.

At the meeting held on Oct. 27th, there was an extremely large display of Orchids, the best seen there for a long time, and no less than eleven medals were awarded for groups.

Baron Sir H. Schrœder, The Dell, Egham (gr. Mr. Ballantine), staged a magnificent group, for which a Silver-gilt Flora Medal was given. It contained Lælio-cattleya × Haroldiana, some fine Cattleya labiata, C. Dowiana aurea, C. Bowringiana, C. × Maroni, C. × Fabia Dell variety, the original Dendrobium Phalænopsis Schrœderianum, the pure white D. P. hololeucum, D. formosum giganteum, the handsome Odontoglossum crispum Sanderianum, and Cypripedium × Baron Schröder. An Award of Merit was given to Cattleya × Gauthieriana (Leopoldi × Schrœderæ), a pretty cream white flower, slightly tinged with rose, and the front lobe of the lip pink.

J. Bradshaw, Esq., The Grange, Southgate (gr. Mr. Whitelegge), gained a Silver-gilt Flora Medal for a splendid group, containing many good forms of Cattleya labiata, including two with white segments, C. Loddigesii alba, C. × Mantinii, Lælio-cattleya × Ingrami, L.-c. × luminosa, many Oncidium variosum, O. Forbesii, the clear yellow O. F. Bradshawiæ, the handsome O. × Mantinii superba, Lycaste hybrida, and others. A First-class Certificate was awarded to Lælio-cattleya × Haroldiana John Bradshaw (L. tenebrosa × C. × Hardyana), an extremely fine form, having Indian yellow sepals tinged with rose,

rose-purple petals veined throughout with yellow, and a very dark purple-crimson lip, with some gold veining at the base.

J. Colman, Esq., Gatton Park, Reigate (gr. Mr. Bound), staged a very fine group, for which a Silver-gilt Flora Medal was given. It contained, Cattleya Dowiana aurea, C. Bowringiana lilacina, many handsome forms of C. labiata, including the varieties cœrulea, Master J. Colman, Emperor, and venosa; Lælia pumila, Odontoglossum × mulus, O. Pescatorei, O. madrense, Masdevallia cucullata, M. Davisii, with ten flowers, and others.

J. G. Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), received a Silver Banksian Medal for an effective arrangement of five splendid spikes of Arachnanthe Lowii, taken from one plant, hanging over branches of Asparagus Sprengeri.

Sir Trevor Lawrence, Bart., Burford, Dorking (gr. Mr. White), showed a pan of the remarkable Dendrobium amplum, having large chocolate flowers with a purple lip; Cattleya × Miss Endicott, C. × Ella, an unnamed Gomesa, and Lælio-cattleya × Gottoiana regalis, the latter a very richly coloured form which obtained a First-class Certificate.

H. S. Goodson, Esq., Fairlawn, West Hill, Putney, staged an effective group, which gained a Silver Banksian Medal. It contained a fine example of Cypripedium × Morganiæ, a good pan of C. Spicerianum, with other Cypripedes, Cattleyas, Oncidiums, etc.

G. F. Moore, Esq., Chardwar, Bourton-on-the-Water (gr. Mr. Page), exhibited Cypripedium insigne montanum magnificum and The Queen, both good, large forms, also Phaio-cymbidium × chardwarense (Phaius Wallichii × Cymbidium giganteum) which received a First-class Certificate. Its history is given on page 325.

Captain G. L. Holford, Westonbirt, Tetbury (gr. Mr. Alexander), was awarded a Silver Flora Medal for a fine group, including Cypripedium × Euryale Cleverly's variety, C. × memoria-Moensii, C. × triumphans, C. × Tityus superbus, C. × Schrœderæ candidulum, C. × Sir Redvers Buller, C. × Niobe magnificum, C. × Chas. Richman, Vanda cœrulea, Odontoglossum × crispo-Harryanum, Oncidium Forbesii, Zygocolax × Wiganianus superbus, Cattleya × Mantinii nobilior, C. labiata, C. Dowiana aurea, C. × Fernand Denis, Lælio-cattleya × Sunray with eighteen flowers on a spike, and L.-c. × Milton (C. Lueddemanniana × L. glauca), with rosy lilac flowers, thick in texture, and very fragrant.

Mrs. T. Fielden, Grimston Park, Tadcaster (gr. Mr. Clayton), showed a fine plant of Cattleya labiata called var. Fieldenii, with many large flowers.

H. J. Elwes, Esq., F.R.S., Colesborne Park, Cheltenham (gr. Mr. Walters), showed a fine example of Arundina chinensis, flowers of A.

bambusæfolia, spikes of the beautiful Habenaria carnea, and a spike of an interesting hybrid Calanthe raised between the evergreen and deciduous sections (veratrifolia × Stevensii), having white flowers, intermediate in character. The plant is said to resemble the former.

Messrs. J. Veitch & Sons, Chelsea, staged a splendid group, which gained a Silver-gilt Flora Medal. It contained Lælio-cattleya × Decia, L.-c. × Nysa, L.-c. × bletchleyensis, L.-c. × Lady Rothschild, L.-c. × Bryan, L.-c. × Nysa, two fine Lælia × Digbyano-purpurata, Cattleya × Chloe, C. × Mantinii, C. × Bactia, C. × Hermes, about fifty fine examples of Cattleya labiata, Sophro-cattleya × eximia, and some good Cypripediums, one called C. × Little Gem (Harrisianum superbum × Baron Schrœder) having the dorsal sepal tinted with rose-purple, and the other segments somewhat paler.

Messrs. Charlesworth and Co., Heaton, Bradford, were also awarded a Silver-gilt Flora Medal for a very handsome group, chiefly consisting of hybrids. It included some fine forms of Lælio-cattleya × luminosa, and L.-c. × Haroldiana; forms of Cattleya × Iris, one having golden sepals and petals; C. × Fernand Denis, C. × Lottie, C. × Mrs. J. W. Whiteley, C. × Nestor, Cypripedium × Hitchinsiæ, and others, Lælia × Digbyano-purpurata White Queen, a pretty white form having the lip slightly tinged with violet, the curious Cynoches maculatum, with its singular spotted greenish flowers; Brassia Lawrenceana longissima, with several spikes of orange and brown flowers; and also two distinct forms of Odontoglossum tripudians.

Messrs. Sander and Sons, St. Albans, received a Silver Flora Medal for a fine group, having for a ground-work some fine forms of Cattleya labiata and some elegant palms. It contained a fine specimen of Angræcum sesquipedale, Cyperorchis elegans, Cypripedium × triumphans, varieties of C. × Leeanum, Zygocolax × Veitchii, Lælio-cattleya × luminosa, L.-c. × Acis (tenebrosa × Mendelii), and other plants.

Mr. J. Cypher, Exotic Nurseries, Cheltenham, gained a Silver Flora Medal for a fine and well arranged group, containing some fine Cattleya labiata, Dendrobium Phalænopsis, and other showy things of the season. Cypripediums were good and numerous, and included some fine forms of C. × Leeanum, and yellow forms of C. insigne, the variety Sanderæ being in fine condition.

Messrs. H. Low & Co., Bush Hill Park, staged an effective group, which secured a Silver Flora Medal. It contained some fine Phalænopsis and Cattleyas, including the large and handsome C. Bowringiana Low's variety, and many other showy Orchids.

M. A. A. Peeters, Brussels, showed the handsome Cattleya × Portia

Peeters' variety, C × Fabia Mary de Wavrin (labiata alba × Dowiana aurea), the two latter each receiving an Award of Merit.

Mr. H. A. Tracy, Twickenham, showed a richly coloured form of Cattleya labiata called H. Rider Haggard.

Messrs. B. S. Williams & Son, Upper Holloway, showed a group of Cypripediums and other Orchids, interspersed with graceful foliage plants.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

A MEETING of this Society was held at the Coal Exchange, Manchester, on October 2nd, when there was a good display of Orchids, and the awards included one Gold and two Silver Medals, four First-class Certificates, and two Awards of Merit.

E. Rogerson, Esq., Oakdene, Didsbury (gr. Mr. Blomeley), staged a splendid group, in which species and hybrids were both well represented. A Gold Medal was awarded, besides the following Certificates. Four beautiful plants each gained a First-class Certificate, namely, Cattleya × Fernand Denis, C. × Mrs. Pitt, Odontoglossum crispum xanthoglossum, a large flower of good substance, having a few pale yellow spots on the segments, and a chrome-yellow lip, and Cypripedium Charlesworthii Oakdene var., a large and richly coloured form; while Awards of Merit were given to Sophrolælia × heatonensis, Lælio-cattleya × Galatea, Cypripedium × Eos, C. × Mrs. Preston, and C. × Oakdene.

T. M. Crook, Esq., Stanley Grange, near Preston (gr. Mr. Parks), sent a small group, including Cattleya × Iris, C. Gaskelliana Stanley Grange var., and Cypripedium × Kitty, a cross between C. × T. B. Haywood and C. × Swinburnei, somewhat resembling a large form of C. × Crossianum, the latter receiving an Award of Merit. A Vote of Thanks was accorded for the group.

T. Statter, Esq., Stand Hall, Whitefield (gr. Mr. Johnson), exhibited a few good Cypripedes, and was accorded a Vote of Thanks.

J. E. Williamson, Esq., The Grange, Stratford (gr. Mr. Jones), also received a Vote of Thanks for a small miscellaneous group.

Messrs. J. Cypher & Sons, Cheltenham, staged a choice little group, which gained a Silver Medal, the more noteworthy plants being some good Dendrobium Phalænopsis, Cypripediums, and Odontoglossums.

Messrs. John Cowan & Co., Gateacre, received a Silver Medal for a good group of Odontoglossum grande.

Messrs. A. J. Keeling & Sons, Bingley, Yorks, exhibited Masdevallia × Bocking Hybrid, and Cattleya × Germania, a Vote of Thanks being accorded.

Mr. W. P. Upjohn, Worsley, also received a Vote of Thanks for a splendidly grown plant of Miltonia vexillaria.

ANTHOGONIUM GRACILE.

THIS is a very interesting Bletia-like Orchid which has recently flowered in the collection of Mrs. Brightwen, The Grange, Stanmore (gr. Mr. Odell). It is a native of Northern India, being found in Nepal, Sikkim, the Khasia and Naga hills, Burma, and Yunnan, ranging from about 4,000 to 7,000 feet altitude. It was originally described by Lindley (*Gen. and Sp. Orch.*, p. 426), and has recently been figured by King and Pantling (*Ann. R. Bot. Gard. Calc.*, viii., p. 96, t. 134). The whole plant is much like a Bletia, though the flowers are quite different in structure. They are about 7 to 9 lines long, and narrow at the base, but broader and more spreading at the apex. Their colour is purple, with some darker spots on the lip, which organ becomes white near the apex, while the anther is yellow. White varieties are said to be not uncommon. The lip is narrowly funnel-shaped, and set at right angles on the pedicels, so that a flower with the sepals and petals removed looks like a miniature tobacco pipe. It also flowered in the collection of H. J. Elwes, Esq., in the autumn of 1894.

R. A. R.

ORCHIDS FROM BRADFORD.

SEVERAL very beautiful hybrids are sent by Messrs. Charlesworth & Co., Heaton, Bradford, all of which have been raised in their establishment. First may be mentioned the extremely brilliant Lælio-cattleya × Sunray (L. cinnabarina × C. superba), which has orange-vermilion sepals, rather darker petals, and a three-lobed intense purple-crimson lip, with a deep yellow disc lined with crimson. L.-c. × luminosa (L. tenebrosa × C. Dowiana aurea) closely resembles the seed parent in shape, but the colour of the sepals and petals is light coppery-yellow, veined with light red-purple, and of the lip very deep velvety purple, with a slight trace of yellow veining on the disc. It is a large and handsome hybrid, and is also known under the name of L.-c. × Truffautiana. Cattleya × Iris (bicolor × Dowiana aurea) is represented by two large and very handsome flowers, having the sepals and petals of a rich bronzy brown, and the lip of the richest purple-crimson, with faint traces of yellow veining on the disc, and the small side lobes yellow. It is curious how little the shape of C. bicolor has been modified; the petals are broadened out to 1½ inches across, and the front of the lip to two inches, while at the base of the latter occur a pair of rounded auricles, five or six lines long, which clasp the column; and these characters are, of course, due to the influence of C. Dowiana. It is an extremely beautiful hybrid, and Messrs. Charlesworth consider it one of the best they have yet raised. C. × Mrs. Pitt (Harrisoniana × Dowiana

aurea) has light rose-purple sepals and petals, most like a reduced form of the pollen parent in shape, and the lip like an enlarged form of C. Harrisoniana ; the disc, however, shows alternate crimson and yellow veins, and round this is a large bright yellow area, shading off to light blush at the undulate margin. The others are, a fine form of C. × Germania (C. granulosa Schofieldiana × Hardyana), and a very richly coloured hybrid derived from C. Schilleriana ♀ and C. Trianæ ♂, and thus the reverse cross of C. × Elvina, of which it must be considered a variety. It bears a general resemblance to the fine natural hybrid, C. × Whitei. They form a very brilliant group of autumn-flowering hybrids.

ACIANTHUS AMPLEXICAULIS.

ACIANTHUS is a small genus of Listera-like Orchids which is very rarely seen in cultivation, though one of the species, A. exsertus, R. Br., flowered at Kew in October, 1891, and again in the following year. Eight species are known, namely four from Australia, three from New Caledonia, and one from New Zealand. To these must now be added an additional Australian species, bringing the total up to nine. It is the plant described in 1891 as Microstylis amplexicaulis by F. M. Bailey (*Queensl. Bot. Bull.*, iii, p. 18). It was found at the scrubs of Eudlo Creek, Queensland, and its habitat is given as "on the ground and in decayed epiphytes." Recently the author has transferred it to Listera, as Listera amplexicaulis, remarking:—"I think when better specimens are available that the plant will prove to be a Listera, as in general appearance it approaches that genus" (*F. M. Bailey, Queensl. Flora*, p. 1560). An examination of the flowers of an authentic specimen, sent by Mr. Bailey, shows that it is a species of Acianthus, and as it is distinct from those previously described it must bear the name of A. amplexicaulis. It is easily distinguished from the other Australian species by its smaller flowers and very slender segments.

R. A. ROLFE.

PHREATIA PUSILLA.—Another Australian Orchid which was not allocated to its right genus is Oberonia pusilla (F. M. Bailey, in *Rep. Exped. Bellenden-Ker*, p. 62), which proves to be a species of Phreatia. It was found on Mount Bellenden-Ker, at about 4,000 feet altitude, and the author remarks that no fresh flowers were found on the plants, which latter were only found on one tree, on which they were very numerous. It is a much smaller and more slender plant than the other Queensland species, P. limenophylax, Rchb. f., the specimen seen, including the raceme, being scarcely an inch high. R. A. R.

CATTLEYA GRANUGLOSSA.

THIS is a very interesting hybrid obtained by crossing Cattleya granulosa ♀ and C. amethystoglossa ♂, in the collection of T. L. Mead, Esq., Oviedo, S. Florida. The seedlings, however, were raised by Mr. E. O. Orpet, of South Lancaster, Mass., to whom we are indebted for the photograph here reproduced. The flower has retained a good deal of the shape of C. granulosa, particularly in the petals and lip, but the influence of C. amethystoglossa is also apparent. The ground colour of the sepals

FIG. 51. CATTLEYA × GRANUGLOSSA.

and petals is light yellow suffused with pale lilac, and spotted with purple. The front lobe of the lip is rich crimson, with a granular surface, and the side lobes are pale lilac. The front lobe of the lip, it will be observed, is not quite so distinctly unguiculate as in the seed parent, and the side lobes are rather broader. It is likely to develop into a very fine thing when the plant becomes strong. It was described and figured in *American Gardening* for 1901 (p. 61, fig. 16). We only know the plant by the photograph and description.

ORCHIDS AT CHELSEA.

WE have recently had the pleasure of inspecting the establishment of Messrs. William Bull & Sons, at Chelsea, where for some time increased attention has been paid to hybridising Orchids, particularly the Cattleya and Cypripedium groups, and we were particularly pleased to see a number of seedling Odontoglossums, which furnishes another proof that this charming genus is not so intractable as was formerly supposed, if the hybridist only goes the right way to work. A number of interesting Orchids were also observed in flower, and it will be convenient to mention the different subjects in the order of our notes.

On entering the first house we found two good examples of the pretty Cattleya × Portia in flower, together with Lælia × Pacavia, and a nice lot of L. pumila, including some very good forms. Miltonia vexillaria Leopoldi is a very handsome variety, of which two good plants were in flower. The rare and beautiful Angræcum citratum was also noted, together with Cœlogyne Massangeana and Oncidium Kramerianum. Here also Paphiopedilums were in force, and among the species we noted a few good plants of P. purpuratum, and P. tonsum, the beautiful P. insigne Sanderæ, P. virens P. superbiens, P. Argus, and the brilliant P. Charlesworthii. Among the hybrids were a nice batch of the graceful P. × Arthurianum, two good P. × Crossianum, a fine P. × Charles Canham, a pretty hybrid from P. exul and P. Chamberlainianum, P. × Swanianum, a fine hybrid from P. Curtisii, and several others.

In another house was a nice batch of Cattleya labiata and C. Bowringiana in flower, several of the former being very good, the handsome Miltonia spectabilis Moreliana, a fine Zygopetalum maxillare with four racemes, and Lælio-cattleya × Schilleriana. There were were also two pods of Brassavola Digbyana, containing hybrid seed.

In a third house we observed several good plants of Miltonia Roezlii in flower, mostly the variety alba, a batch of the charming little Habenaria carnea, Dendrobium Victoria-Regina, a nice lot of D. formosum, Cattleya × Parthenia, three good C. Dowiana, several Phalænopsis Esmeralda, and a nice batch of Anœctochili.

We now came to the seedling house, where we found a fine series of young seedling Cattleyas, Lælias, and Cypripedes, running into thousands in the aggregate, and including many choice crosses, some of which will be heard of later on. Some good plants of Paphiopedilum × Io grande × niveum are considered very promising. Close by was a new Odontoglossum house in course of erection, embodying the latest improvements.

Passing into another house we noticed a nice batch of Odontoglossum grande in flower, together with O. bictoniense, O. tripudians, O. Pescatorei,

forms of O. crispum, the brilliant Cochlioda vulcanica, Masdevallia Veitchiana, Stenoglottis longifolia, Gomesa planifolia, Oncidium incurvum, and some good forms of Oncidium Forbesii and tigrinum; also some healthy little plants of Promenæa xanthina flowering very well.

In a succeeding division we found the brilliant Epidendrum vitellinum, Masdevallia Estradæ, M. Reichenbachiana, and M. × Hincksiana, the latter both in buff and cream-white forms, Restrepia maculata, the true R. elegans, and the curious little Pleurothallis tridentata flowering very freely. Some Cymbidiums were showing for flower, and we noted also Oncidium flexuosum, O. serratum, with a good spike, and O. tigrinum bearing inflorescences with three and four side branches, and promising to make a fine show; also the pretty little Cœlogyne fimbriata, Miltonia spectabilis Moreliana, and a good example of the pretty and fragrant Odontoglossum madrense.

Lastly must be mentioned the seedling Odontoglossums, a very interesting little lot in quite a small light house. Some were germinating on the compost of the old plants, others had been pricked off into pans, and yet others had been potted into tiny pots and had several small leaves. They were from several crosses and looked quite thriving. We also observed several capsules. These seedlings were a very interesting sight, and we hope they will go through the winter safely. The collection generally was in thriving condition, and it is evident that Orchids can still be well grown well within the metropolitan area.

MASDEVALLIA LAUCHEANA.

A PLANT of a very pretty little Masdevallia, bearing six flowers, was exhibited at the R.H.S. meeting on October 13th last by Messrs. Hugh Low & Co., of Bush Hill Park. Messrs. Low state that they imported it many years ago (10 or 12) from the Cauca district, but it has not flowered before. On comparison it proves identical with M. Laucheana, a species whose history is very imperfectly known, though we are able to trace it back to 1894, when it was exhibited from the collection of R. I. Measures, Esq., Cambridge Lodge, Camberwell, and received a Botanical Certificate, the date being October 23rd (*Gard. Chron.*, 1894, ii., p. 511; *Orch. Rev.*, ii., p. 372). Two years later it was figured (*Woolw. Masd.*, p. 53, t. 19), when the following note appeared:—"Although Masdevallia Laucheana has been known in cultivation for five or six years, no drawing or botanical description of it has hitherto been published. It was named by Dr. Kränzlin, of Berlin, in honour of his friend, Herr Lauche, of Eisgrub, Austria. I can obtain no information as to its origin or habitat." Whether the original stock and Messrs. Low's plant can be traced to the

same source is more than we can say, but it is a curious coincidence that both five years from 1896 and twelve years from the present time (in neither case can the exact date be given) would take us back to 1891. A good plant is also flowering in the Kew collection. The perianth-tube is 6 lines long by 3 lines broad, and the colour white, while the tails are 10 to 11 lines long, rather stout, curved and reflexed, and deep orange yellow in colour.

R. A. ROLFE.

ORCHIDS AT KEW.

AUTUMN-FLOWERING Orchids are making a brilliant display at Kew, among the showier kinds now in bloom being a profusion of the beautiful Dendrobium Phalænopsis, examples of D. formosum, a lot of Calanthe × Veitchii, some brilliant Cattleya labiata and C. Bowringiana, Vanda cœrulea and V. Kimballiana, several good plants of the handsome Cynorchis purpurascens, a plant of C. Lowiana, some good examples of Oncidium crispum, O. varicosum, O. Papilio, and the fine O. tigrinum, Miltonia spectabilis Moreliana, M. Clowesii, M. candida, Lælia Perrinii, Epidendrum vitellinum, E. × O'Brienianum, Lycaste Skinneri, Cymbidium giganteum, the pretty little Phalænopsis Esmeralda, Odontoglossum grande, and various other familiar species.

Pleione lagenaria and P. maculata are now beginning to flower, and Neobenthamia gracilis must be mentioned as a very attractive rarity which is worthy of more attention. Two plants are in bloom, each carrying six or eight heads of pretty white flowers, with some yellow and a few purple spots on the disc of the lip. The plants are of branching habit, some three feet high, and the slender stems bear a profusion of grass-like foliage, which makes it very graceful when out of flower. It is a native of East Tropical Africa, and grows very freely in a warm house.

Among other interesting things in flower may be mentioned the remarkable Cycnoches Loddigesii and C. chlorochilon, the natural hybrid Cymbidium × Gammieanum, Maxillaria grandiflora, M. variabilis, flowering profusely, Spathoglottis × kewensis, Lælia pumila, L. crispilabia, a good specimen of the pretty little Oncidium cheirophorum, Sophronitis cernua, and the floriferous Odontoglossum aspidorhinum.

Restrepias are flowering freely, and include the true R. antennifera with striped flowers, R. maculata, which was for so long confused with the preceding, the taller and darker R. guttulata, R. erythroxantha, another nearly allied plant but differing in its pandurate lip, the pretty little R. sanguinea, and the rare R. aspasicensium. Pleurothallis Warmingii is another remarkable Restrepia-like plant, with bristly leaf-sheaths, and

P. astrophora bears numerous purple star-like flowers, which look quite imposing with the aid of a powerful lens. It is one of the chief faults of some of these little gems that they are so small, but there is the corresponding advantage that they take up very little room: as a matter of fact quite a collection of them can be accommodated by fixing up a few yards of wire, and suspending them in a suitable house.

Quite a batch of Polystachyas are in flower, the species including P. rufinula, P. odorata, and P. tessellata, from Tropical Africa, P. anceps from Madagascar, P. bicolor (Rolfe), a near ally of P. rufinula, from the Seychelle Islands, and P. odorata from Tropical America. Other rarities include Macradenia lutescens, from Guiana, Dendrobium capituliflorum, Epidendrum vesicatum, Lanium Berkeleyi, several Bulbophyllums, and a number of others which must be passed over unnoticed.

Paphiopedilums are well represented, and include the beautiful P. insigne Sanderæ, a neat little group of P. Charlesworthii and P. Spicerianum, the richly coloured P. × marmorophyllum, P. × Fitchianum, and a number of other hybrids, while Phragmopedilum Schlimii and some of its hybrids are also flowering freely. The graceful Spathoglottis Hardingiana is also producing several racemes of its bright purple flowers, and with them is one inflorescence of a lilac-coloured variety.

RAISING ORCHIDS FROM SEED.

BEGINNERS in Orchid hybridisation often experience a difficulty in getting the seeds to germinate, and in getting the young seedlings over the early stages, and anything which tends to simplify matters is welcomed. It is highly important to keep the seed-bed in a proper state of humidity, and Mr. W. Page, gardener to G. F. Moore, Esq., of Bourton-on-the-Water, finds that small frames inside the house, containing a layer of sphagnum moss at the bottom, on which the pots are stood, are extremely useful. The seeds are sown, some on blocks of larch and some on pots of cocoa-nut fibre, and placed in these frames, and covered with a hand-light. It has proved a great success for Cattleyas, Lælias and Brassavolas, of which about 35 different crosses have been raised this year. A large number of Cypripedes are also coming up now from seeds sown on the old plants about a year ago. This is considered the best time to sow the seeds, as the old plants need less water, and there is less danger of the seeds being washed away. It is interesting to find that the seedlings of Zygopetalum × Cymbidium, already noted in these pages, are now apparently large enough to flower at any time, and that those from Cattleya citrina × Brassavola Digbyana are progressing favourably. In both cases the flowering is awaited with interest.

PAPHIOPEDILUM GODEFROYÆ.

AN interesting and beautiful series of six photographs is sent by Mr. G. Walker, gardener to H. Druce, Esq., of St. John's Wood. Mr. Walker calls attention to the account of Cypripedium × Godefroyæ which appeared in these pages (v. p. 75 and vi. p. 231), in which the conclusion was arrived at that this plant was probably a natural hybrid, and remarks:—"I should say that it is a species, for I have crossed C. niveum with C. bellatulum, producing C. × Mrs. H. Druce, and C. concolor with C. bellatulum, producing C. × Walkerianum, and both of them are distinct in foliage and flower from C. Godefroyæ, and much stronger in growth. These crosses will not produce C. Godefroyæ, and I send you photographs of the two hybrids with their parents, together with C. Godefroyæ lencochilum, that you may see the differences for yourself."

The question referred to by Mr. Walker is a very interesting but difficult one, and it is quite easy to follow his argument with the beautiful series of photographs sent, but there are other hybrids in existence which, unfortunately, are not available for comparison. And the question of the origin of C. Godefroyæ, and its relation to C. Godefroyæ lencochilum, and to the species mentioned, was never thoroughly cleared up, as may be seen by reference to the articles cited. Nor has any further information come to hand as to how far the species grow together or separately. Neither of Mr. Walker's hybrids are identical with C. Godefroyæ lencochilum, which itself differs from the original C. Godefroyæ. The hybrid between C. bellatulum and C. concolor which was identified with C. Godefroyæ, we have not seen. We should be glad of further information on the different points raised.

R. A. R.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, during November, on the 10th and 24th respectively, when the Orchid Committee will meet at the usual hour 12 o'clock noon.

The Manchester and North of England Orchid Society will also hold meetings at the Coal Exchange, Manchester, on November 6th and 13th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 3 p.m.

A photograph of a fine example of Cattleya amethystoglossa is sent by Messrs. Hooley Bros., Bitterne Park, Southampton. Messrs. Hooley remark:—"It was imported three months ago, and now bears two spikes,

and an aggregate of forty-two flowers, twenty-four and eighteen respectively." It is a very fine example, but the photograph is unfortunately not suitable for reproduction.

American Gardening states that "Mr. William Jacobson, lately with Oakes Ames, North-Eastern Massachusetts, is now Orchid grower to Dr. J. F. Schaffer, Pittsburg, Pa."

Dendrobium Phalænopsis is now in great beauty in the collection of T. Statter, Esq., Stand Hall, Whitefield. Mr. Statter writes:—"We have the finest lot of this Orchid in bloom you can imagine. It is the finest Orchid ever introduced, without doubt. Although it likes a temperature of 90 to 100 degrees when growing, yet the flowers can be worn in a lady's dress three or four nights in succession without fading, and for decorative purposes under electric light it has no equal."

"The Orchid Hunt" is the title of a play now being produced at the New Gaiety Theatre in the Strand. A daily contemporary remarks:—"The opening act is laid in Kew Gardens, where a school for the study of the history and cultivation of Orchids is in session. The rivalry of two amateur cultivators of Orchids—a great English statesman and the French Minister for Foreign Affairs—leads to a wager as to which of them shall secure the most perfect specimen of a certain plant. Collectors are sent to Peru to search for something of great beauty, and fortune appears to favour England, until the wiles of a pretty French girl secure the prize. With this she lands at Nice, where the second Act takes place. In the end, however, a humble and amusing English gardener — impersonated by Mr. Edmund Payne—produces a still finer specimen that he has quietly grown at Kew."

BEETLECUTE.—Messrs. Valls & Co., 16, Coleman Street, London, E.C., have just been awarded a medal by the Royal Horticultural Society for the insecticide known by the above name, in recognition of its efficacy as a destroyer of Cockroaches, Ants, and Woodlice. It is said to have been used at Chiswick with great success. Particulars of the remedy are given in our advertisement pages.

Attention is also called to an announcement of an importation of Orchids from the mountains of Central Sumatra, which should contain some interesting things.

Cattleya × Hardyana var. Richard Ashworth is a very beautiful variety which has just flowered in the collection of R. Ashworth, Esq., Newchurch, Manchester (gr. Mr. Pidsley). The sepals and petals are white, and the front of the lip has a white border fully three lines broad, which grades

away to nothing at the sides. The eye-like blotches are very pale yellow, he area in front being purple-crimson, and the basal part rose, veined with light yellow. It is likely to develop into a very fine thing.

A flower of the very pretty Lælio-cattleya × Norba superba (C. Mossiæ × L. xanthina), for which Messrs. James Veitch & Sons received an Award of Merit at the Royal Horticultural Society's meeting on October 14th, is sent from the collection of F. Wellesley, Esq., Westfield, Woking, by Mr. Hopkins. The sepals and petals are light buff-yellow, and the front of the lip light mauve purple, with some pale yellow on the disc.

A fine hybrid between Cattleya Harrisoniana and C. Dowiana is sent by M. C. Vuylsteke, of Loochristi, which must be referred to C. × Mrs. Pitt. It is rich purple, with some golden veining on the lip.

ORCHID PORTRAITS.

CATTLEYA DOWIANA ROSITA.—*Journ. Hort.*, 1903, ii, p. 347, with fig.

CATTLEYA SCHILLERIANA LOWI.—*Journ. Hort.*, 1903, ii, p. 303, with fig.

CYPRIPEDIUM INSIGNE (in Amateur's Greenhouse).—*Garden*, 1903, ii, p. 273, with fig.

CYPRIPEDIUM LAWRENCEANUM GRATRIXIANUM.—*Journ. Hort.*, 1903, ii, p. 369, with fig.

CYPRIPEDIUM × RAPPARTIANUM.—*Gard. Mag.*, 1903, p. 723, with fig.

DENDROBIUM × VENUS.—*Journ. Hort.*, 1903, ii, p. 325, with fig.

LÆLIA × HELEN.—*Garden*, 1903, ii, p. 303, with fig.

LÆLIO-CATTLEYA × NORBA SUPERBA.—*Gard. Mag.*, 1903, pp. 723, 725, with fig.

LISSOCHILUS PURPURATUS, Lindl.—*Bot. Mag.*, t. 7921.

ODONTOGLOSSUM × SPECTABILE.—*Gard. Mag.*, 1903, p. 683, with fig.

PHALÆNOPSIS AMABILIS RIMESTADIANA.—*Amer. Florist*, 1903, p. 319, with fig.

PHALÆNOPSIS × INTERMEDIA PORTEI.—*Journ. Hort.*, 1903, ii, pp. 394, 395, with fig.

CORRESPONDENCE.

(Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.)

J.S.A.—Cattleya luteola.

W.M.A.—Odontoglossum × Denisonæ (Wilckeanum)

M.—Report too late for current issue.

Photographs received, with thanks. J.J.W.

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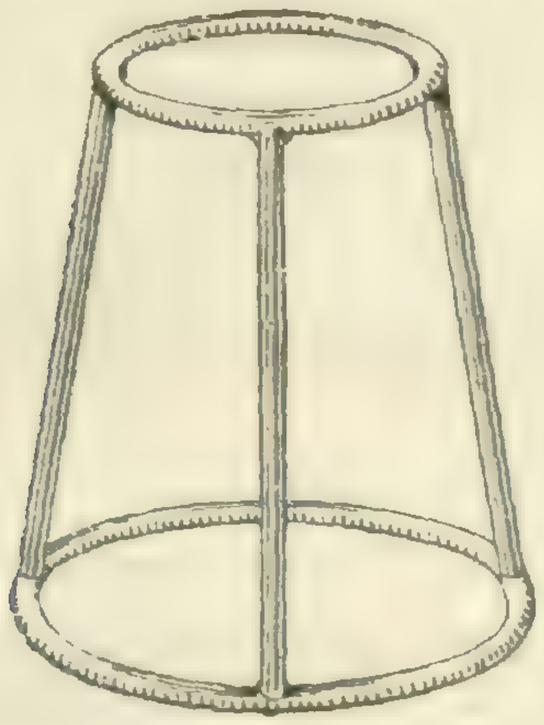

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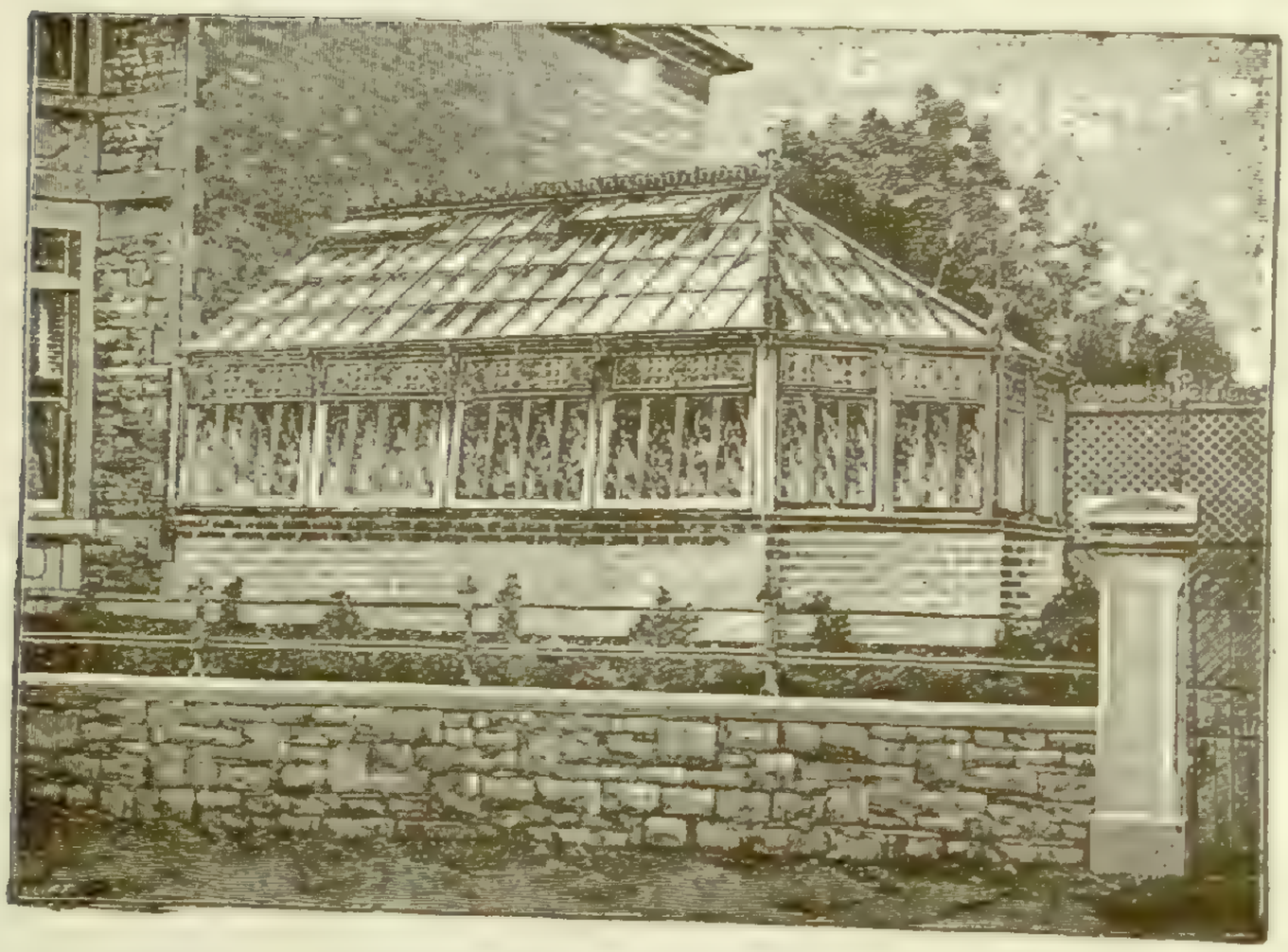

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THE ORCHID STUD-BOOK.

THE nomenclature of hybrids is a subject which has got rather out of hand, owing to the irregular way in which many of the numerous and continuous additions of recent years have been recorded, and at page 34 it was announced that a special arrangement was being made to cope with the difficulty, of which particulars would shortly be given. Owing to the magnitude and intricacy of the task the work has taken longer than was anticipated, but we are now able to give further particulars.

The idea was to compile a list of existing hybrids on a uniform system, giving (1) the adopted name, (2) the parentage, (3) the original publication, with (4) a reference to published figures or other important additional information, (5) the raiser or exhibitor, and (6) the date of appearance. This list was to be published separately, after which additional novelties were to be arranged on the same system, and published monthly, as they appear, in the *Orchid Review*.

The task proved more difficult than was anticipated, owing to the large number of incomplete, doubtful, or contradictory records, and the duplication or multiplicity of names for the same hybrid, and it is surprising how large is the number of records that come under one or the other of these headings. The work, however, has now been practically completed, with the help of Capt. C. C. Hurst, and will shortly be published, including the recorded hybrids to the end of the present year, and it is anticipated that the first of the monthly additions will appear in March next.

It is hoped and believed that such a revised list will do much to check the confusion into which the nomenclature of hybrids has fallen. Several lists have already appeared, but too often they have lacked critical revision, and in any case have rapidly fallen out of date. The latter must be the case with any work, and for this reason we hope that the monthly additions will be especially valuable. These, however, could not be given with confidence without a revision of existing hybrids, hence the arrangement adopted.

We hope that the projected work will meet with wide support. Its necessity has often been urged upon us, but the progress of hybridisation has been so great as to render it impossible to keep pace with the rapidly growing mass of records. The rapidly growing synonymy has often been deplored, and we believe that much of it has arisen from want of system, a condition of things which we hope will be remedied by the present arrangement, for we hope that in future hybridists will send us records of their additions that they may be regularly incorporated.

A further announcement will appear shortly.

ORCHIDS IN THE SUB-ALPINE CORDILLERAS OF SOUTH MEXICO.

IN a recent issue of *Indian Gardening* (Oct. 24th, p. 272) we find a very interesting article by Mr. J. C. Harvey, La Buena Ventures, South Mexico, entitled "Notes of a Journey to the Sub-Alpine Cordilleras of South Mexico," from which the following is condensed, as it gives some interesting glimpses of familiar Orchids in their native homes, and the conditions under which they grow.

It had long been Mr. Harvey's desire to visit the Sierras of his district, but the cares of a large estate never seemed to admit of such a vacation until the spring of this year. In February last, however, it was his good fortune while in Cordoba to meet a Mexican engaged in collecting Orchids as a business, who offered to act as guide, and accordingly about the end of March the writer started by the railway train to Cordoba. After reaching the Rio Colorado the country becomes quite open, consisting of grassy plains, with small stretches of low forest growth, including oaks growing in company with a spiny palm attaining a height of 25ft. On the oaks he noted Schomburgkia tibicinis in immense masses, and when in bloom presenting a fine sight; a few other Orchids were noticeable, such as Epidendrum Schomburgkianum and E. atropurpureum.

On reaching Cordoba, a town of considerable importance, the centre of the most extensive coffee district in the State of Vera Cruz, and about 2,200 feet altitude, he took the up train from Vera Cruz, and after an hour's run through coffee groves, orchards of bananas, mangoes and fields of cane, reached Orizaba, about 5,000 feet above sea level, where he found "good old Antonio" awaiting his arrival. Next morning they took the down train to the coast, alighting at Paso del Macho, a village about 50 kilometres inland from Vera Cruz, where Antonio told him he could find certain plants that he was in search of, and which did not occur at high levels. Some two leagues from the village they came to a long thin strip of

forest-growth, locally called a Rapadel Monte, growing in and by the side of what was then a dry stream bottom: here they came upon splendid specimens of Schomburgkia tibicinis in full bloom: some masses would have weighed 50lbs. or more, with as many as 25 flowering stems a yard and more in length, also on low trees and shrubs within arm's reach many plants of a beautiful Oncidium with yard-long flower stems: a shower of golden blossoms. Antonio said "Oncidium cebolleta majus." It had terete leaves slightly channeled on the upper side, from 5 to 8 inches long—in colour a bronzy green, and, as found, growing in full sunlight on thin leaved stunted bushes.

Quickly scrambling down into the Raya or Nullah, as in India, they soon descried fine masses of Brassavola glauca on low trees. With eager impatience the writer clambered up to detach some of these superb clumps, and got frightfully bitten by ants for his pains. However, all the plants they desired were quickly theirs, and rambling along the Raya they soon filled baskets and sacks with all they could possibly carry of Brassavola glauca, Oncidium tigrinum, O. luridum, and though much below its usual elevation, a few plants of Lælia anceps. One can hardly describe the emotions that possess one, when collecting Orchids or other plants in a state of nature, compared with their acquisition in the ordinary way: snakes, scorpions, ants, or other venomous things are as nothing when on this delightful quest.

One solitary plant of an Oncidium, quite new to the writer was found of the O. Cavendishii type, the leaves, however, much smaller, not more than 5 inches long, bronzy, almost sanguineous in colour. The plant was in perfect flower, stem about 14 inches long, carrying 18 flowers—$\frac{3}{4}$ inches in diameter, creamy white, with a few violet dots on the sepals and petals—a little gem. Here also on the extremity of stout branches on large trees, were seen masses of an upright distichous-leaved Epidendrum with a terminal inflorescence of bright magenta-coloured flowers. This Epidendrum is extremely difficult to collect as it is almost always found growing at a great height and in a mass with an epiphytic Phyllocactus and a large prickly bromeliad, the whole mass of roots forming the nidus of a most venomous species of ant: indeed, the only way to collect the plant is to cut the tree down and smudge them out with smoke. This is also true of a beautiful species of Coryanthes which is occasionally found in these coast forests: in fact, there are two species or perhaps varieties—one a clear yellow without markings, the other with chocolate or maroon-coloured dots on a yellow ground.

The travellers then started off for the sources of the Atoyac, a beautiful mountain torrent, some three leagues distant in the Sierras, and after an hour and a half's walk after leaving Paraja Nuevo, they came to an ancient

walled hacienda, in a state of dilapidation and decay, but a dream for an artist, the walls covered with ferns, mosses, lichens, and even a few Orchids. Antonio stated that the field foreman or mandodor was in his employ to the extent of collecting Orchids for him during spare hours. This Indian informed Antonio that he had been waiting a long time for him to come and fetch the plants he had collected. Leading them around to the rear of his hut. in a small stone-walled enclosure they beheld what afterwards turned out to be by actual count 580 plants of Chysis bractescens, nearly all in glorious bloom. These were merely tacked on to the wall without mossing or any medium, and though they had hung there for many weeks, were in fine condition, full, plump pseudo-bulbs, all with their leads just starting, as Chysis bractescens commences to grow with the flowering. "Never," the writer remarks, "had I seen such a display before, the lovely white waxy blooms in superb condition and in such numbers, exhaling a pronounced but delicate odour reminding me—as I fancied—of Gardenias but less heavy; some of these plants had monster pseudo-bulbs and carried thirteen flowers to the single shoot flower stem; I have never seen more than five or six in cultivation."

They then proceeded onwards, and as the trail neared the stream some fine old forest monarchs were met with, and here they made their first find—some fine masses of Lycaste aromatica, 30 and 40 bulbs in the clumps, and a few fine plants of Stanhopea oculata.

Arriving at the sources of the Atoyac—a large and deep pool, some ten or twelve metres across, surrounded on all sides except the outlet by steep forest-clad hills, the water at the upper edge boiling up in foam—the travellers continued gathering the many things that came to hand, and it soon became a question of capacity to carry. "After continued search," the writer observes, "we espied a few clumps of the to-me-much-desired yellow Trichopilia," the only one, Antonio averred, that grew in the vicinity. It was not in flower, and very few plants were found, but a few more Stanhopeas were added, and a Lycaste which Antonio said differed a little from L. aromatica, and was quite inodorous.

The author thinks that many plants accredited to Central America will be found inhabiting "the Atlantic 'versant' of the South Mexican Cordilleras; for example, Oncidium Cavendishii and O. ornithorhynchum are generally accredited to Guatemala, yet they are fairly common plants in our Sierras, and if my recollection is not at fault, the same is said of Sobralia macrantha. Yet not only the type plant, with stems six or seven feet high, is abundant, but the other form growing more than three feet, generally a little less, and besides this the variety alba, all of which I have seen, and I am told by some Indians who have collected Orchids that there are other Sobralias."

Returning to Orizaba, "the following day was spent arranging and repacking plants, strutting about the outskirts of the town, and in a garden I noted some fine healthy plants of Dendrobium nobile, established on the lower branches of an Ash much cultivated in the parks and gardens of the uplands of tropical Mexico. This Dendrobe seemed quite at home, and was flowering finely, though certainly it never gets the drying-off in Orizaba that appears to be necessary in cultivation. The owner informed me that he bought the plants in Mexico City at an auction sale of a small collection, and took them from the little baskets they had been cultivated in and tacked them on to the tree in question some five years previous and had never touched them since."

"Returning to my lodging, I finished the afternoon resting preparatory to the climb up the Cerro of San Cristobal, towards whose upper flanks, more or less streaked with lines of mist and fleecy clouds, I cast occasional glances. There amidst those cool vapours and not infrequent showers, was the home of Odontoglossum Rossii, O. bictoniense, O. nebulosum, Cattleya citrina and Epidendrum vitellinum, all beautiful and showy Orchids—veritable gems, and I was now to see them in their native habitat.

"The following morning, after an early cup of coffee, we again sallied forth, crossing level fields. Half a league's walk brought us to the base of the Cerro: here conditions change almost at once. From fields of deep soil the immense rock masses rise abruptly, all cultivation ceases, and we take the narrow rocky trail, soon finding out what is meant by good wind and sinews, but notwithstanding the arduous climbing, objects of interest command our attention at every step. . . . Here I collected Cypripedium Ireapeanum and a pretty Bletia with flowers similar to B. hyacinthina, the Cypripedium detected by its withered stems, while the latter was in full flower.

"At about 500 feet above Orizaba we found Oncidium Cavendishii fairly abundant, and soon had collected all we could well carry, placing the plants in a safe place to gather up on our return."

On ascending 1,000 feet higher the temperature "became sensibly cooler, mists and vapours began to surround us, and soon we came upon fine masses of Lycaste Deppei, here and there fine clumps of Oncidium ornithorhynchum, O. incurvum, Cœlia sp., Arpophyllum sp., Stanhopea oculata and S. tigrina, and many other Orchids I did not know. Ascending yet another 1,000 feet or thereabouts, we at last arrived at the zone of Odontoglossum Rossii and its many varieties growing in quantity and in full bloom; a sight worth coming far to see. Every tint from pure white to rose colour was met with, the flowers varying much in size from little fellows one inch to large ones nearly two and a half inches in expansion." This was at an altitude of about 2,500 feet above Orizaba, and here also, "in dense shades growing

amidst mosses and selaginellas, but with their roots well into the rich soil, I found some beautiful little Goodyeras, dark olive green leaves with a silvery stripe through the centre.

"At this point we rested, ate luncheon, and prepared for the final climb in search of Cattleya citrina and Epidendrum vitellinum, and such others as haunt these chilly heights. Ascending a couple of hundred feet higher we came upon a few stragglers of Odontoglossum bictoniense and O. nebulosum, and espied a few plants of C. citrina and E. vitellinum, when it came on to rain so hard that we finally concluded to return, contenting ourselves with the very few specimens obtained at this zone, as it was hopeless to think of cultivating them in low country. One soon learns why failure so often attends the cultivation of these plants in glass houses. I fancy it must be well nigh impossible to duplicate the natural conditions. Here there is always a more or less brisk wind movement, constant humidity, intermittent sunshine, yet never very warm, the temperature in the shade for at least eight months of the year ranging from 55 F. at night to 65 , and occasionally 70 F. by day: in winter from 38 F. to 60 F. by day, often not rising above 55°F. yet always a breezy elastic air.

"We now commenced our descent, and as we neared the base of the mountain made a slight detour, to reach a cliff side where Antonio said Sobralia macrantha was to be found. After much scrambling amongst the rocks and boulders we came upon the place in question, and it really was an embarassment of riches; a large area of the mountain side was literally almost covered with this Orchid growing in large masses, both in the soil between the stones and upon the mossy rocks—a few were noticed on very moss-covered trunks of trees. In fifteen minutes we had collected all it was possible to carry. It must be a beautiful sight when such quantities are in bloom, which season is in late May and June

"Resuming our descent, we arrived at the foot of the mountain, having gathered up such plants as we had left on our ascent, and at nightfall arrived in Orizaba tired out but well pleased with our day's climbing. There is little more to add. The following day we made a short climb up another mountain where, at an elevation of about 4,500 feet above sea level, we found abundance of Lælia anceps, and in less than two hours collected some 50 plants, five pieces with 10 to 25 bulbs and from three to six or more leads. It must be highly interesting to visit such a district in November, when the different varieties of L. anceps are in flower; only in this way could one discriminate and hope to get the rarer forms.

"After packing up our treasures and safely shipping them to the estate, I boarded the train and the following day arrived in the hot country with pleasing recollections of a journey not soon to be forgotten."

PAPHIOPEDILUM GODEFROYÆ AND ITS ALLIES.

THE question of the origin of Paphiopedilum Godefroyæ has been discussed several times in these pages, when the conclusion was arrived at that it might be a natural hybrid, and at page 350 we gave a note respecting a series of six photographs sent by Mr. G. Walker, gardener to H. Druce, Esq., of St. John's Wood, which threw a new light upon the subject. Four of these photographs are now reproduced, together with an illustration of P. Godefroyæ leucochilum, and as P. niveum was figured

FIG. 52. PAPHIOPEDILUM × MRS. H. DRUCE.

at page 273 we have the materials for a very useful comparison of all the forms concerned.

P. × MRS. H. DRUCE (fig. 52) is a very beautiful hybrid, raised by Mr. Walker from P. niveum ♀ and P. bellatulum ♂, and flowered for the first time in 1897 (*O. R.*, vi. p. 232). As will be seen from the figure, it is quite intermediate in character, and a comparison with that of P. Godefroyæ leucochilum, given on page 361, shows several marked differences. In the

present one the foliage approaches that of P. niveum in its more erect character, while that of P. Godefroyæ leucochilum is quite spreading. Mr. Walker states that the differences are still more marked when the living plants are seen growing side by side. The flowers are white, covered with innumerable small purple dots, which are found on the lip as well as on the sepals and petals. The two parents are figured on pages 273 and 369.

P. × WALKERIANUM (fig. 53) was also raised by Mr. Walker, from P. concolor ♀ and P. bellatulum ♂, and flowered in 1898 (*O.R.*, vi, p. 233). Its two parents are figured on 368 and 369, and a comparison will show how

FIG. 53. PAPHIOPEDILUM × WALKERIANUM.

their characters are combined in the hybrid. The flower most resembles P. concolor, while the colour is light yellow with numerous small brown spots, which are very numerous along the middle of the dorsal sepal and petals, almost forming a narrow band. A comparison with the figure on the following page will show that it is quite distinct from P. Godefroyæ leucochilum, though a form previously raised from the same parentage was identified with P. Godefroyæ (*O. R.*, v, p. 75).

P. GODEFROYÆ LEUCOCHILUM (fig. 54) is a very pretty variety, which differs from the original P. Godefroyæ in having a white lip. Comparatively little is known of its history, except that it appeared in cultivation about ten years ago. In 1893 we received a flower from the collection of R. H. Measures, Esq., The Woodlands, Streatham, and in the following year it was figured in these pages (*O. R.*, ii, p. 145), from a plant in the collection of O. O. Wrigley, Esq., Bridge Hall, Bury. This plant is said to have been purchased as an imported piece in August, 1892. Shortly afterwards it was described and figured from the collection of R. I. Measures, Esq., Cambridge Lodge, Camberwell (*Gard. Chron.*, 1894, i. pp. 717, 815, fig. 106), when it was remarked:—"The chief peculiarity of this variety is its clear, cream-white, unspotted lip, a peculiarity which runs

FIG. 54. PAPHIOPEDILUM GODEFROYÆ LEUCOCHILUM.

consistently through the whole importation." Shortly afterwards it was figured in *Lindenia* (t. 431). It is very variable, as may be seen by the series of thirteen forms from the collection of R. I. Measures, Esq., figured at page 281, and the lip is not altogether exempt from this peculiarity, for a few minute purple dots are present in a few cases, besides a great amount of variation in the amount of spotting on the dorsal sepal and petals. Some of these forms approach very near to P. bellatulum, but their exact relationship to that species and to the original P. Godefroyæ is at present uncertain. We cannot ascertain the history of the original importation, and the facts pointed out above would suggest that it may be a local form. We should like to see the hybrid between P. concolor and

P. bellatulum that was identified with P. Godefroyæ, for the question now arises as to how it would compare with P. × Walkerianum. There is too much mystery wrapped up with the question. For example, what can be the significance of the following record?:—"Cypripedium Godefroyæ ♀ crossed with niveum ♂ produced, from the same seed pod, C. concolor, niveum, Godefroyæ, leucochilum, C. leucochilum pure white, bellatulum, and nearly fifty intermediate forms" (*O. R.*, ii, p. 227). We have repeatedly tried to get further information, or to see some of the flowers, but without success, and we hope some of our hybridists will repeat the experiment, for confirmation is certainly required. It would be interesting also to cross P. Godefroyæ with P. bellatulum and P. concolor, and to intercross P. concolor and P. niveum, to see how the resulting seedlings compare with wild forms. We also hope that importers will furnish further information on this interesting but perplexing question, particularly as to localities in which any of the species grow intermixed, and how far P. Godefroyæ and its variety leucochilum occur separately or otherwise. Information of this kind should suffice to settle the question whether the well-known variability of P. Godefroyæ is due to hybridity or not.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of the Society was held at the Drill Hall, Buckingham Gate, Westminster, on November 10th, when a magnificent display of Orchids was seen.

J. Bradshaw, Esq., The Grange, Southgate (gr. Mr. Whitelegge), received a Silver Flora Medal for a splendid group, containing many fine varieties of Cattleya labiata. C. × Mantini, C. × Mrs. J. W. Whiteley, and some good Lycastes, the handsome L. Skinneri Enchantress being particularly noticeable.

J. Colman, Esq., Gatton Park, Reigate (gr. Mr. Bound), gained a Silver Flora Medal for a very fine group, the most prominent plant being a large specimen of Cymbidium Tracyanum, bearing two spikes, each with sixteen flowers.

Baron Sir H. Schröder, The Dell, Egham (gr. Mr. Ballantine), showed the large and handsome Lælio-cattleya × bletchleyensis Ruby King, to which a First class Certificate was awarded. It is a large and handsome light purple form, having the throat of the lip of a brilliant ruby purple.

H. L. Bischoffsheim, Esq., Warren House, Stanmore (gr. Mr. Ellis), obtained a Silver Banksian Medal for a good group, including Oncidium varicosum, Cattleya Dowiana aurea, C. labiata, Cypripedium Spicerianum,

and some good Odontoglossums, among the latter being one shown as O. × Mrs. Bischoffsheim, said to be a natural hybrid of O. Wallisii.

G. Clayton, Esq., Wylam Hall, Wylam-on-Tyne (gr. Mr. Bean), was awarded a Silver Banksian Medal and a Cultural Commendation for three splendidly-grown Calanthes, one C. × W. Murray and two C. × Kenneth, all having large and well-formed leaves, huge bulbs, and very strong spikes of flowers.

E. Ashworth, Esq., Harefield Hall, Wilmslow (gr. Mr. Holbrook), showed Cypripedium × Mrs. A. W. Sutton (niveum × Chamberlainianum), and C. × fulshawense (Boxallii × insigne Harefield Hall var.), the latter, a very fine form, receiving an Award of Merit.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), showed two good yellow forms of Cypripedium insigne, and C. × Ville de Paris & C. × Sallieri × C. insigne Harefield Hall var.), the latter receiving an Award of Merit. It was a very large yellow flower, having the dorsal sepal profusely blotched with purple-brown.

Sir F. Wigan, Bart., Clare Lawn, East Sheen (gr. Mr. Young), exhibited Cattleya labiata Amesiana, Cypripedium × Muriel Hollington, and Cymbidium × Wiganianum (eburneum × Tracyanum), the latter receiving an Award of Merit. The flowers were large, cream-white, dotted with lines of purple on the sepals and petals, and with heavier red-brown markings on the lip.

N. C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), showed Odontoglossum crispum Elainii, a neatly formed and profusely spotted variety.

G. F. Moore, Esq., Bourton-on-the-Water, showed Cypripedium insigne bisepalum, having the lower sepal enlarged, and partly white, thus somewhat resembling the dorsal in colour.

W. Thompson, Esq., Walton Grange, Stone (gr. Stevens), showed the handsome Odontoglossum × waltonense (polyxanthum × crispum), figured at page 49, also O. × loochristiense tenebrosum, densely blotched with chocolate.

Messrs. J. Veitch & Sons, Chelsea, staged an excellent group, containing a fine lot of Lælia Perrinii hybrids, good Cypripedium insigne Sanderæ, and a plant of C. i. Harefield Hall variety. A Silver Flora Medal was given, also an Award of Merit to the handsome Lælio-cattleya × Wrigleyi (L. anceps × C. Bowringiana).

Messrs. Charlesworth & Co., Heaton, Bradford, staged a fine group of hybrids, which also gained a Silver Flora Medal.

Messrs. H. Low & Co., Enfield, secured a Silver Flora Medal with an excellent group, containing Cattleya labiata Amesiana, C. l. glauca, both very fine, other good forms of the species, and a small plant of C. bicolor

Mrs. M. A. Gratrix with a pale slate-blue lip and the segments light green.

Messrs. Sander & Sons, St. Albans, were also awarded a Silver Flora Medal for a good group, consisting chiefly of Cypripediums, and including C. × Cassandra (callosum × superbiens), C. insigne Cygnet, C. × Louis Sander, and a well-flowered example of Zygopetalum Jorisianum.

M. A. A. Peeters, Brussels, staged an effective group, including the rose-coloured Cattleya × Rembrandt (labiata × elongata), C. × Fabia Mary de Wavrin, C. × F. Peeters' variety, C. × Peetersii (labiata × Hardyana), C. × Imperator (granulosa × labiata Peetersii), four plants of C. × Goossensiana, C. × G. inversa, and a seedling Lælio-cattleya (L.-c. × elegans × C. Hardyana). A First-class Certificate was given to Cattleya × Hardyana albens Peeters' variety, having white sepals and petals, slightly tinged with lavender, and the lip veined with yellow and bearing two yellow blotches on the disc; and Awards of Merit were given to Lælio-cattleya × Wrigleyi, and to Cattleya × St. Gilles (Patrocinii × Dowiana aurea), the latter having bright rose-crimson flowers, with some golden veining on the lip, and the front lobe very dark purple.

Messrs. Fisher, Son, and Sibray, Handsworth, Sheffield, exhibited the pretty Cypripedium × Memnon (Charlesworthii × Spiceriannum), with the greater part of the dorsal sepal white.

Messrs. J. & A. A. McBean, Cooksbridge, showed Cypripedium × Violetta (Charlesworthii × ? venustum), having the large dorsal sepal rose-pink in colour.

AT the meeting held on November 24th there was again a very fine display of Orchids, and seven Medals were awarded, besides three Awards of Merit, and one Cultural Commendation.

Captain Holford, C.I.E., Westonbirt, Tetbury (gr. Mr. Alexander), staged a group of excellently grown Orchids, to which a Silver-gilt Medal was awarded. It contained two beautiful examples of Cypripedium insigne Sanderæ with six and seven flowers, a splendid plant of C. i. Harefield Hall var. with eight flowers, which gained a Cultural Commendation: three good forms of C. × Euryades raised in the collection, C. × Charlesianum superbum, a beautiful plant of C. × Leeanum Holford's var. with thirteen flowers, C. × L. Staffordianum, a very fine form (A. M.), and Lælio-cattleya × Cassiope Westonbirt var. (pumila × exoniensis), a very richly coloured form, which also received an Award of Merit.

F. A. Rehder, Esq., The Avenue, Gipsy Hill (gr. Mr. Norris), staged a good group of Cypripediums, which gained a Silver Flora Medal. It contained some good forms of C. insigne, yellow and spotted, the fine C. i. Baron Schröder, C. × Harrisianum virescens, C. × Bruno, the dark and handsome C. × Ernesto (villosum × œnanthum superbum), C. × Mrs.

Rehder (Argus × Rothschildianum), C. ex-Ianthe (exul × Ianthe), C. Sanderianum, &c.

H. Whateley, Esq., Kenilworth, received a Silver Banksian Medal for a good group of Cypripediums, including C. × Amy Robsart (villosum × nitens), a large and handsome spotted form, C. insigne Sanderæ, C. i. Harefield Hall var., C. × Madame Jules Hye, forms of C. Leeanum, &c.

H. S. Leon, Esq., Bletchley Park (gr. Mr. Hislop), sent the fine C. × Preciosa Hislopi, and C. × Comet var. Audry (Warneri × Dowiana aurea), with primrose sepals and petals, and a purple lip, passing to rose at the apex.

R. I. Measures, Esq., Cambridge Lodge, Camberwell (gr. Mr. Smith), sent Cypripedium × Charles Richman superbum, a very fine form, and a seedling C. insigne with yellow flower, said to have been derived from C. i. Eyermanianum × C. i. Sanderæ.

J. Wilson Potter, Esq., Croydon (gr. Mr. Young), showed a plant of the rare and interesting Zygopetalum Murrayanum.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Cypripedium insigne citrinum, and C. i. Westfield var., a good dark form.

Messrs. Sander & Sons, St. Albans, staged a very fine group, which was awarded a Silver-gilt Flora Medal. It contained a very fine form of Cattleya labiata called King Edward VII., the pretty little Waluewa pulchella, Lælio-cattleya × Pallas, L.-c. × bletchleyensis, Zygocolax × Veitchii, Vanda cœrulea, Angræcum distichum, Odontoglossum × Andersonianum, O. crispum, and a few others. Cypripedium × Masters-insigne (Mastersianum × insigne), most resembling the former in the flower, C. insigne with prettily variegated leaves, C. × gigas, C. × nitens, C. × memoria-Moensii, and numerous others.

Messrs. James Cypher & Co., Cheltenham, also received a Silver-gilt Flora Medal for a very fine group, consisting chiefly of Cypripediums, the forms of C. × Leeanum and C. insigne being numerous and fine, the latter including C. i. Sanderæ and the Harefield Hall variety. Other interesting things were C. × Leoniæ, C. × Tagus (Leeanum giganteum × Spicerianum), a particularly fine form of Cattleya Schilleriana, and a pretty hybrid between Lælia tenebrosa and Cattleya Harrisoniana.

Messrs. Charlesworth & Co., Heaton, Bradford, received a Silver Flora Medal for a very fine group, containing the handsome Lælio-cattleya × luminosa aurifera, L.-c. × Irene (C. Bowringiana × L. tenebrosa), a handsome purple flower with a pale throat to the lip; L.-c. × Luna (C. Harrisoniana × L. harpophylla), with primrose-coloured flowers, L.-c. × Clonia, L.-c. × Wilhelmina (L.-c. × elegans × C. labiata), L.-c. × Cappei, Cattleya × Enid, the handsome Sophrocattleya × eximia, Odontoglossum × Hallio-crispum, some good O. crispum, O. × Coradinei bearing a fine branched spike of 25 flowers, Lycaste × Tunstillii, Miltonia vexillaria

Leopoldi, the handsome Cypripedium × Thalia (insigne Chantini × Baron Schröder), and other good Cypripediums. C. × Queen of Italy (insigne Sanderæ × Godefroyæ leucochilum), a pretty light primrose, slightly spotted flower, received an Award of Merit.

Messrs. Hugh Low & Co., Bush Hill Park, received a Silver Banksian Medal for a good group, including Odontoglossum Harryano-crispum, Cattleya labiata, Lælia pumila, Epidendrum osmanthum, Cypripedium × Swinburnei magnificum, C. × Muriel Hollington, C. × Niobe, C. × Pollettianum, C. × Prewettii, C. × Leeanum magnificum, C. × Arthurianum, C. × Tityus superbum, and several good forms of C. insigne, both yellow and spotted.

Messrs. James Veitch & Sons, Chelsea, staged a very pretty little group containing several examples of Lælio-cattleya Decia, L.-c. × Terentia, L.-c. × Illione, L.-c. × Eunomia, L.-c. × Nysa, L.-c. × bletchleyensis, Cattleya × Apollo, C. × Portia, C. × Elvina, Lælia × Omen, the pretty little Dendrobium × Scylla (japonicum × Cybele), the handsome Cypripedium × Thalia (insigne Chantini × Baron Schröder), and others.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

A MEETING of this Society was held at the Coal Exchange, Manchester, on October 16th last, when there was a magnificent display of Orchids, no less than nine medals being awarded.

E. Rogerson, Esq., Didsbury (gr. Mr. Blomeley), staged a splendid group, which gained a Silver-gilt Medal, a First-class Certificate going to Brassocattleya × Schrœderæ-Digbyana, and Awards of Merit to Lælio-cattleya × Adolphus, Odontoglossum crispum E. Rogerson, and Cypripedium × Memnon inversum.

S. Gratrix, Esq., Whalley Range (gr. Mr. Cypher), received a Silver Medal for a choice group, a First-class Certificate being given to a very fine example of Cattleya Dowiana Rosita, and an Award of Merit to Cattleya × Lottie (Aclandiæ × Trianæ Backhouseana).

T. Statter, Esq., Whitefield (gr. Mr. Johnson), exhibited the original Cattleya × Hardyana in fine condition, and received both a Silver Medal and Cultural Certificate. It is figured at page 337.

W. Duckworth, Esq., staged a choice group which gained a Silver Medal, the more noteworthy plants being the rare Lælia Perrinii alba and some good Cattleya Dowiana aurea.

O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), also received a Silver Medal for a group of choice things, including Dendrobium Phalænopsis album; two good plants of Odontoglossum grande aureum, and others.

Messrs. Charlesworth & Co., Bradford, staged a splendid group consisting chiefly of hybrids, to which a Silver-gilt Medal was given.

Messrs. J. Cypher & Sons received a Silver Medal for a good miscellaneous group, in which Dendrobium Phalænopsis was conspicuous, an Award of Merit being given to the variety highburiensis.

The Stone Orchid Co., Stone, also received a Silver Medal for a fine group of Odontoglossum crispum and O. grande.

Messrs. A. J. Keeling & Sons, Westgate Hill, Bradford, received a Bronze Medal for a small group of interesting things, also Awards of Merit for Cypripedium × Hitchinsiæ delicatum and C. × Daphne (exul × Charlesworthii).

Messrs. J. Cowan & Co., Gateacre, sent a small group, to which a Vote of Thanks was accorded, also an Award of Merit to Cattleya × Euphrasia inversa.

Mr. S. Allen, Sale, also received a Vote of Thanks for a small group.

AT the meeting held on November 6th, the display was rather smaller, and the weather very unfavourable, but some interesting things were staged.

E. Rogerson, Esq., Didsbury (gr. Mr. Blomeley), again staged a very fine group, to which a Silver-gilt Medal was awarded. The more noteworthy plants were Cattleya labiata alba, C. × Hardyana alba, Cypripedium × Tityus, C. × Corona, and C. × Edith (Rothschildianum × Boxallii atratum), the two latter gaining Awards of Merit.

Mrs. Ardern, Hazel Mount, Stockport (gr. Mr. Morris), staged a nice group of plants, to which a Vote of Thanks was given, also Awards of Merit to Cattleya × Clarkiæ, Lælio-cattleya × luminosa, and Cypripedium × niveo-callosum.

T. Statter, Esq., Whitefield (gr. Mr. Johnson), sent a few good things, including Cattleya × Mantini superba, Cypripedium × calloso-Veitchii, and C. × Madame Jules Hye, the two latter receiving Awards of Merit.

Walter Laverton, Esq., Victoria Park, Manchester (gr. Mr. Smith), sent a nice group, chiefly of Cypripedes, receiving an Award of Merit for C. × William Matthews superbum (Lawrenceanum × Mastersianum).

Jas. Williamson, Esq., Stretford, sent the pretty Cattleya × Portia, and a hybrid Cypripedium of unknown origin.

Messrs. J. Cypher & Sons, Cheltenham, staged a fine group of good things, which received a Silver Medal, a First-class Certificate also going to Lælio-cattleya × Statteriana superba.

Messrs. Keeling & Sons, Bradford, received a Bronze Medal for a nice group, including some good forms of Cattleya granulosa and others, an Award of Merit being given to C. granulosa lutea.

Mr. S. Allen, Sale, received an Award of Merit for Cattleya labiata splendens, a richly coloured form.

PAPHIOPEDILUM CONCOLOR AND P. BELLATULUM.

THE annexed figures of the two beautiful species, Paphiopedilum concolor and P. bellatulum, are reproduced from photographs sent by Mr. G. Walker, of St. John's Wood, in connection with the question of the origin of P. Godefroyæ leucochilum, discussed a few pages earlier (pp. 359-362). These, together with P. niveum (figured on page 273) and P. Godefroyæ form a very distinct section of the genus, and the different forms are very popular in gardens. With the single exception of the original P. Godefroyæ,

FIG. 55. PAPHIOPEDILUM CONCOLOR.

all are figured in the present volume, including two artificial hybrids which have been raised.

P. CONCOLOR (fig. 55) was the first known species of the group. It was discovered by the Rev. C. Parish, in 1859, at a place called Pya-Thonzoo, near Moulmein, growing in hollows in the rock, that are filled with decaying vegetable matter, and was introduced to cultivation in 1864, by Messrs. Hugh Low & Co. Subsequently it was found on the Birds'-Nest Islands,

near Champon, (whence P. Godefroyæ originally came), growing on limestone cliffs facing the sea; in Cambodia, whence it was sent by the late M. Godefroy-Lebeuf: and in Tonkin: so that it is a very widely diffused species. Several varieties have been described.

P. BELLATULUM (fig. 56), was also introduced by Messrs. Hugh Low & Co., in the spring of 1888, from a locality unspecified, but Mr. Ridley has since recorded its habitat as Siam, just outside the boundary of the Malay Peninsula. Afterwards it was discovered in the Shan States, Upper Burma, by the late Mr. R. Moore, the discoverer of P. Charlesworthii, who described

FIG. 56. PAPHIOPEDILUM BELLATULUM.

it as generally distributed in the neighbourhood of Fort Stedman, within a radius of some thirty to fifty miles round Lake Inle, growing on low hills, in loam, among the undergrowth, or on rocks to some extent exposed to the sun (*O. R.*, iii. pp. 169-170). No other species of the group was found there. It is a much more vigorous plant than P. Godefroyæ, and varies considerably in the amount of spotting on the flowers, the variety album (*O. R.*, vi. p. 305, fig. 15) being quite unspotted.

CALENDAR OF OPERATIONS FOR DECEMBER.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

To those who have had experience in the cultivation of Orchids it is well known that abundance of light is indispensable to their well doing. We have now reached the period when the least amount is at hand, and it becomes necessary to utilise it to the best advantage. Those that have the good fortune to be located in rural districts have the advantage over those in the neighbourhood of large towns in this respect. Daylight with the latter is a scarce commodity; hence it is necessary to constantly keep the roof glass as clean as possible, in order to get all the light available.

The temperature of all the divisions will reach their lowest point during this month, and should, with little variation, be as follows:—

Warm House.—Day, 74°; Night, 68°; Morning, 64°.
Cattleya House.—Day, 68°; Night, 64°; Morning, 60°.
Intermediate House.—Day, 62°; Night, 58°; Morning, 55°.
Cool House.—Day, 58°; Night, 54°; Morning, 50°.

Unfortunately, for the plants and their growers, houses are often used for Orchids that were originally used for another and cooler class of plants, consequently the piping is insufficient to insure the requisite degree of warmth without unduly heating the pipes; hence on the occasion of hard weather a dry and scorching atmosphere is created, altogether unfitted to the welfare of the choice and oftentimes costly inmates. How to proceed under these circumstances is often a puzzle to the grower. In the first place he tries to maintain the temperature, and then, in order to counteract the dryness of the air, throws water about to produce moisture, which usually ends in remedying one evil and promoting another. Under these circumstances it is much better to keep the temperature lower during a spell of severe weather, so that the above state of things does not occur. The evil of over-damping during winter, when fire heat is so much in evidence, is two-fold in its action; first, we get a superabundance of moisture in the air, and secondly, the moisture condenses on the bars and rafters, forming drips, which, except under the most favourable circumstances, falls on the plants, and causes irreparable damage. In most modern houses drip-proof rafters and bars are used; these carry off the condensed moisture, but even then a surcharged atmosphere is not at all beneficial at this season, this often proving the forerunner of the much-dreaded "spot." The wisest, and in the end the cheapest, method is, when a new house is being built, to place under the stages a much larger quantity of piping than is usually considered sufficient, for the greater the heating surface, the lower proportionately will be the temperature of the whole, yet the aggregate will be sufficient to raise the temperature of the house to the required degree,

without the usual fiery sensation so much and wisely disliked by gardeners.

Referring once again to damping, I may say that in most houses there are certain parts that become dry much sooner than others, and consequently, to keep them moist, water has to be thrown over them frequently. This proceeding is not always wise, providing there is sufficient moisture in the air without that arising from these sources, for, as before stated, an overabundant supply of moisture cannot be too strongly condemned; hence it is often better to allow these dry places to remain so, than to damp them frequently and create more moisture. The shingle or other moisture-holding materials beneath the pipes and stages should be damped when showing signs of becoming dry, but all quick-evaporating surfaces should only be damped on favourable occasions.

In the matter of ventilation, the Cool houses should, except during very severe weather, always have a little air on, as these, having less fire heat to create a circulation, become "stuffy" much sooner than the warmer departments. The latter should be ventilated on all favourable occasions daily, if possible, even only for an hour or so.

The question of watering during winter has been dwelt upon, but I must again urge the necessity of moderation in this respect.

Odontoglossum grande, having done flowering and finished up its bulbs, should have less water given at the root, and be gradually brought to a state of rest. The same remark will apply to O. citrosmum, which in some instances may be already showing new breaks, from which issue the flower spikes. To give these much water between this time and the appearance of the spike will probably result in their producing none. O. Uroskinneri is now growing and rooting freely, and should in consequence be kept moderately moist, and may even now be re-potted or surfaced if in a condition to warrant such a proceeding. It should be grown at the warmest end of the Cool house, the conditions of which seem to fulfil its requirements. O. pulchellum, now in bloom, is one that does not like a saturated base for long at a time, and hence, when shifted into another pot, should only have a very small quantity of potting material supplied to it.

Masdevallias generally should be kept rather dry at the root all through the winter months, and kept a little warmer than the Odontoglossums. M. tovarensis is now in bloom, its snow-white flowers being very acceptable at this dull season. M. Wageneriana, muscosa, simula, and several other small-leaved kinds, with Pleurothallis macroblepharis and Barberiana, do better in the cooler atmosphere of the Odontoglossum house. Other Pleurothallis grow along with the Masdevallias, and in like manner should be kept rather dry. P. Roezlii requires to be grown in the Intermediate house, and having now finished growth, should be given only sufficient water to keep it in firm condition.

The deciduous Calanthes, C. vestita, × Veitchii, and others of this section, are now giving a grand display of their nodding plumes, adding greatly to the attractiveness of our houses, although within the fog radius. Their beauty is short-lived if a visitation of fog occurs whilst they are in flower. The plants from now onwards will need little or no water, and after the spikes are cut, may be laid on their sides in a dry warm corner, or other suitable position.

Dendrobium nobile, and numerous hybrids from it, with D. crassinode, Wardianum, primulinum, and Findlayanum will now be swelling their buds preparatory to flowering, but if any respect for the plants be entertained they should on no account be hurried into bloom by placing the plants in strong heat. The temperature of the Cattleya house will suit them all, excepting the latter, which usually remains in the Warm house throughout the year. A trifle moister condition at the root should prevail whilst they are developing and carrying their blooms, afterwards reverting to the former practice of only giving enough water to prevent or check shrivelling. D. aureum commenced flowering last month, and individual plants will continue to come on into bloom throughout the winter. D. Jamesianum—not the short-bulbed form, D. infundibulum, which is often know under the above name —is now flowering, its blooms being a miniature production of those of D. formosum. It grows well at the cool end of the Cattleya house, if it is always kept in a moist condition.

Among the Cattleyas that bloom in the late spring and early summer may be mentioned C. Warneri. Plants of this species will now be showing signs of activity, both new growths and roots being pushing freely. They should now be placed at the warmest end of the Cattleya house, well elevated on inverted flower pots, to bring them as near the light as possible, and until growth is fully completed sufficient water should be given to keep the composition in fairly moist condition. There are also other plants in this house in various stages of growth, such as Lælia crispa, L. purpurata, etc., and these must be watered with care and discretion during the cold dull months before us. Of the thin-bulbed section, Lælia harpophylla will be fast growing, and some of the more forward are nearly finished up. These will at all times take plentiful supplies of water. When this species is completely at rest it should be placed in the warmest and lightest end of the Cool house.

THE AMATEUR'S HOUSE.

The amateur will find plenty of interest at the present time in his collection. The brilliant autumn-flowering Calanthes have now begun to bloom, and will be soon at their best. In nearly every collection the old Cypripedium insigne will be found in bloom at this season. It has always been a general favourite amongst amateurs, owing to its vigorous

constitution, and easy culture, and as the handsome flowers remain fresh for a very long time, they are especially valuable for cutting and decorative purposes. At the present time there are a great number of C. insigne varieties in commerce, some of them better than others, and the best certainly deserve a place in every collection. In C. insigne Maulei and Chantini we have varieties that will take a lot of beating, but undoubtedly the one to grow is C. insigne Sanderæ. This is certainly a most beautiful and distinct variety, and is gradually becoming more plentiful in cultivation.

The best time to re-pot C. insigne is immediately after flowering. It requires no special kind of compost, as I have seen it well grown and flowered when potted like an ordinary stove or greenhouse plant, and it will thrive in almost any house where frost is excluded, proper attention being given to watering, etc.

The Oncidiums are now very gay, particularly O. crispum, Forbesii, varicosum, and tigrinum. The flowers of these beautiful plants, arranged as they are in loose branching panicles, might almost be compared to swarms of gay butterflies. Several smaller species are also now very effective: amongst them may be mentioned the elegant O. cheirophorum. Trichosma suavis should be grown by everyone; it flowers freely at this season, and is deliciously fragrant, besides being of easy culture. Sophronitis grandiflora, Maxillaria picta, and Lælia × Eyermaniana are now well out, together with a number of less showy things, and altogether the houses are particularly gay at present.

Among the many plants now throwing spikes must be enumerated Cymbidium Lowianum, Odontoglossum Edwardi, Maxillaria grandiflora, Odontoglossum Rossii, O. Cervantesii, O. maculatum, O. × Humeanum, Oncidium incurvum, and O. macranthum, together with numerous others, which will form materials for some future notes.

HABENARIA CARNEA.

See FRONTISPIECE.

THE Frontispiece to the present volume represents a very remarkable specimen of Habenaria carnea, from the collection of H. J. Elwes, Esq., Colesborne Park, near Cheltenham (gr. Mr. Walters). It is a fine example of cultural skill. Last year the plant bore three fine spikes, and received a Cultural Commendation from the R.H.S., on October 21st, but this year it has produced no less than eight spikes, as shown. The photograph here reproduced has been kindly sent by Mr. Elwes, who, with his able gardener, must be congratulated on the production of such a beautiful specimen. It would be interesting to have a few particulars of the method of treatment adopted.

ORCHIDS IN SEASON.

CATTLEYA labiata has again been making a very fine display, and its variable character is now well known. A very richly coloured variety is sent from the collection of the Marquis de Wavrin, Chateau de Rousele, Belgium, through Messrs. Sander & Sons, and on account of its rich colour, and the absence of yellow in the throat, it has been suggested as a possible natural hybrid. We do not, however, find other evidences of hybridity, and think it can only be a distinct variety of this fine old species.

A flower of the beautiful Cattleya labiata Amesiana is sent by Messrs. Hugh Low & Co. The front lobe of the lip is of a very pleasing shade of delicate lavender-purple, the disc light yellow, and the rest of the flower white. It is very good in form, and a charming variety in every way.

Several interesting flowers are sent from the collection of J. J. Neale, Esq., of Penarth, by Mr. Davy, including the handsome Spathoglottis Vieillardii, *Zygopetalum pallidum*, and Masdevallia muscosa, a nice specimen of the latter being in flower, and Mr. Davy alludes to the method of fertilisation, of which an account was given at pp. 228—230 of our last volume. A flower of a seedling Paphiopedilum proves to be P. × Ashburtonæ. It came up as a stray seedling on a pot of P. × Harrisianum. Lastly must be mentioned flowers of Camaridium ochroleucum, which is mentioned as a lovely little gem, although the flowers are somewhat fugacious. A large basket of it is suspended close to the glass in the lightest part of the Warm house. It is grown in peat only, and forms a beautiful sight when seen in the mass. It may be added that in British Guiana this plant is known as the "Snowdrop Orchid."

A flower of the beautiful Aërides Lawrenceæ is sent from the collection of E. J. Lovell, Esq., Oakhurst, Oxted, by Mr. Jones. It is said to have been sent by a private collector from the Philippines, seven years ago, and has now produced a beautiful raceme of twenty flowers.

A flower of a large and handsome form of Paphiopedilum insigne is sent from the collection of Frank A. Rehder, Esq., of Gipsy Hill. It received a First-class Certificate from the Manchester Orchid Society in November, 1898, under the name of Cypripedium insigne Baron Schröder. It closely resembles the Harefield Hall variety, and the dorsal sepal measures 2 inches across, and bears numerous dark brown blotches.

A very richly coloured form of Cattleya Bowringiana is sent from the collection of T. Statter, Esq., Stand Hall, Whitefield, by Mr. Johnson. It was purchased by the late Mr. Statter, from Messrs. Sander, as a plant from the original importation. A good flower of C. labiata is also sent from a plant said to have been purchased from the late Mr. B. S. Williams, some twenty years ago, when there were only a few plants in the country.

THE HAREFIELD HALL SALE OF ORCHIDS.

AN important two days' sale of duplicates, &c., took place at the residence of Elijah Ashworth, Esq., Wilmslow, Cheshire, on November 4th and 5th. The catalogue included many Orchids of great value and beauty, several of which were quite unique and were being offered for sale for the first time; consequently there were frequent flashes of spirited bidding as these plants were put up. Dendrobium nobile Harefield Hall var. was one of these, each plant realizing about £10. Two plants of the natural hybrid Lælia × Finckeniana (anceps × albida) realised 17 and 13 guineas respectively. Five plants of the famous Harefield Hall variety of Cypripedium insigne were offered, prices varying from 27 to 10 guineas, according to the size of the plants. An interesting feature was the sale of several seedling Cypripediums and Cattleyas, some of them very small, but which averaged about 45 shillings each. The high water mark in Cypripedes was reached at 30 guineas for C. Lawrenceanum Hyeanum superbum, with one good growth. C. × Leeanum Clinkaberryanum running second for 26 guineas. Some fine bidding took place for a good plant of Cattleya guttata Prinzii var. Sanderæ, 160 guineas being offered, but this failed to reach the reserve and the plant was withdrawn. The same remark applies to the beautiful Odontoglossum crispum Ashworthianum, £500 being offered, but this also was withdrawn. Two good plants of Cattleya labiata alba were sold, each being knocked down at about £90. The attendance of buyers was good, most of the principal Orchid growers in the country being either present or well represented. Twenty lots had reserve figures placed on them, varying from £1,000 to £50, only two of which reached the reserve figure, the Cattleya labiata albas above mentioned. The total of the two days' sale realized nearly £1,700.

CRASSINODE.

NOTES.

THE last meeting of the year of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, on December 15th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on December 4th and 18th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 3 p.m.

Two distinct and beautiful forms of Cattleya labiata are sent from the collection of F. Wellesley, Esq., Westfield, Woking.

We have received a flower of the striking form of Cattleya bicolor, called Mrs. M. A. Gratrix, which was exhibited by Messrs. Hugh Low & Co. at the R.H.S. meeting on November 10th. Its slate-blue lip is remarkable, but we do not see how it differs from C. b. cœrulea. It is now in the collection of S. Gratrix, Esq.

Dendrobium cumulatum is very floriferous when well grown, and a beautiful piece has been sent from the collection of Sir Trevor Lawrence by Mr. White. The flowers are borne in dense pendulous clusters.

ORCHID PORTRAITS.

CŒLOGYNE CRISTATA.—*Amer. Gard.*, 1903. pp. 619, 620, with fig.

CYPRIPEDIUM GODEFROYÆ LEUCOCHILUM.—*Journ. Hort.*, 1903, p. 4, with fig.

HABENARIA CARNEA.—*Gard. Chron.*, 1903, ii., p. 323, fig. 137.

LÆLIO-CATTLEYA × HAROLDIANA JOHN BRADSHAW.—*Gard. Mag.*, 1903, pp. 740, 741, with fig.

LÆLIO-CATTLEYA × NORBA SUPERBA.—*Garden*, 1903, ii, p. 321, with fig.; *Journ. Hort.*, 1903, ii, p. 437, with fig.

LÆLIO-CATTLEYA × WRIGLEYI.—*Gard. Mag.*, 1903, pp. 794, 795, with fig.

MILTONIA VEXILLARIA.—*Garden*, 1903, ii, p. 358, with fig.

ONCIDIUM GARDNERI.—*Journ. Hort.*, 1903, ii, pp. 414, 415, with fig.

ONCIDIUM PUMILUM.—*Journ. Hort.*, 1903, ii, pp. 458, 459, with fig.

RENANTHERA STORIEI.—*Gard. Chron.*, 1903, ii, p. 346, fig. 143.

CORRESPONDENCE.

(Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.)

I.B.—Lanium Berkeleyi and Oncidium raniferum.

R.N.H.—Odontoglossum tripudians.

F.M.B.—The hybrid from Paphiopedilum Curtisii and P. philippinense is P. × Clinkaberryanum, of which your plant may be a form.

J.S.—Cattleya × Clarkiæ is the name of the hybrid between C. bicolor and C. labiata.

W.M.A.—We do not find a hybrid between Cattleya Dormaniana and C. labiata: that between the latter and C. Leopoldi would be C. × Victoria Regina. In view of the uncertainty of the parentage the name might stand over till it flowers again.

Photographs received, with thanks. H.J.E.

Several communications are unavoidably postponed till next month.

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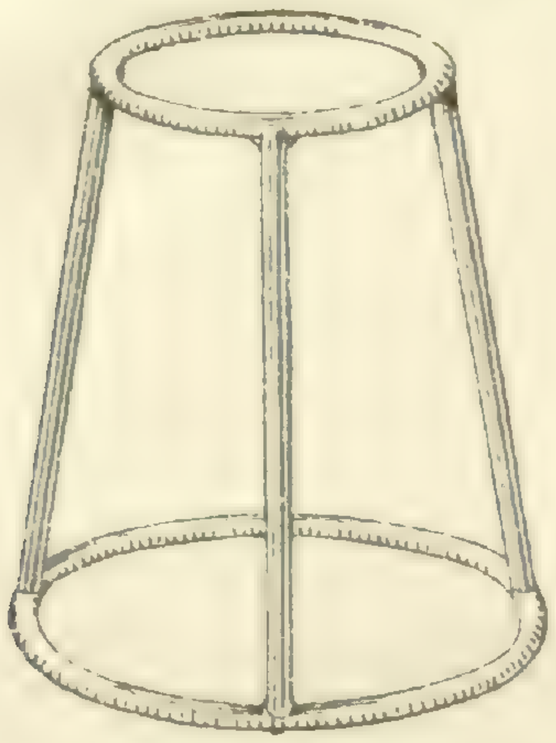

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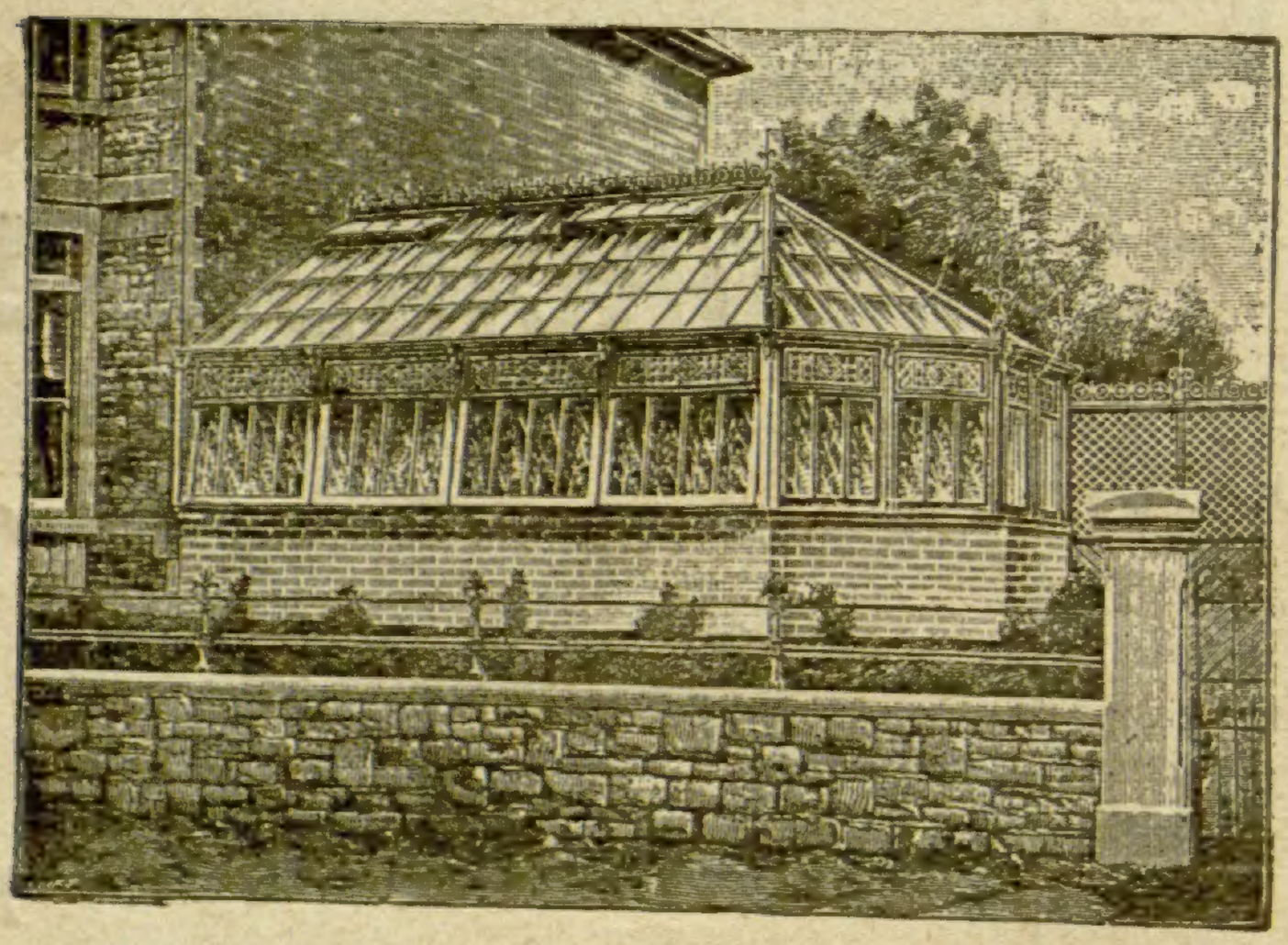

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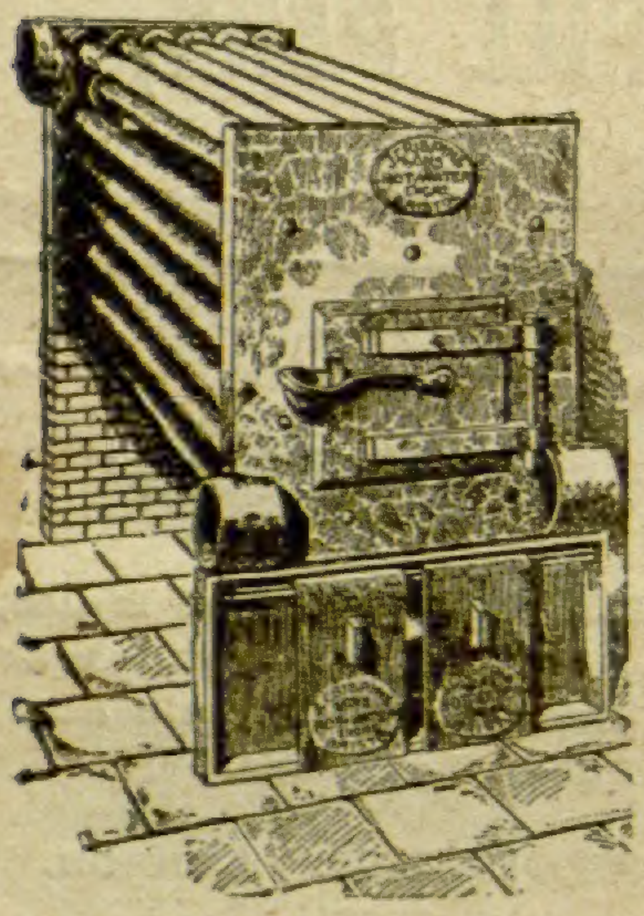

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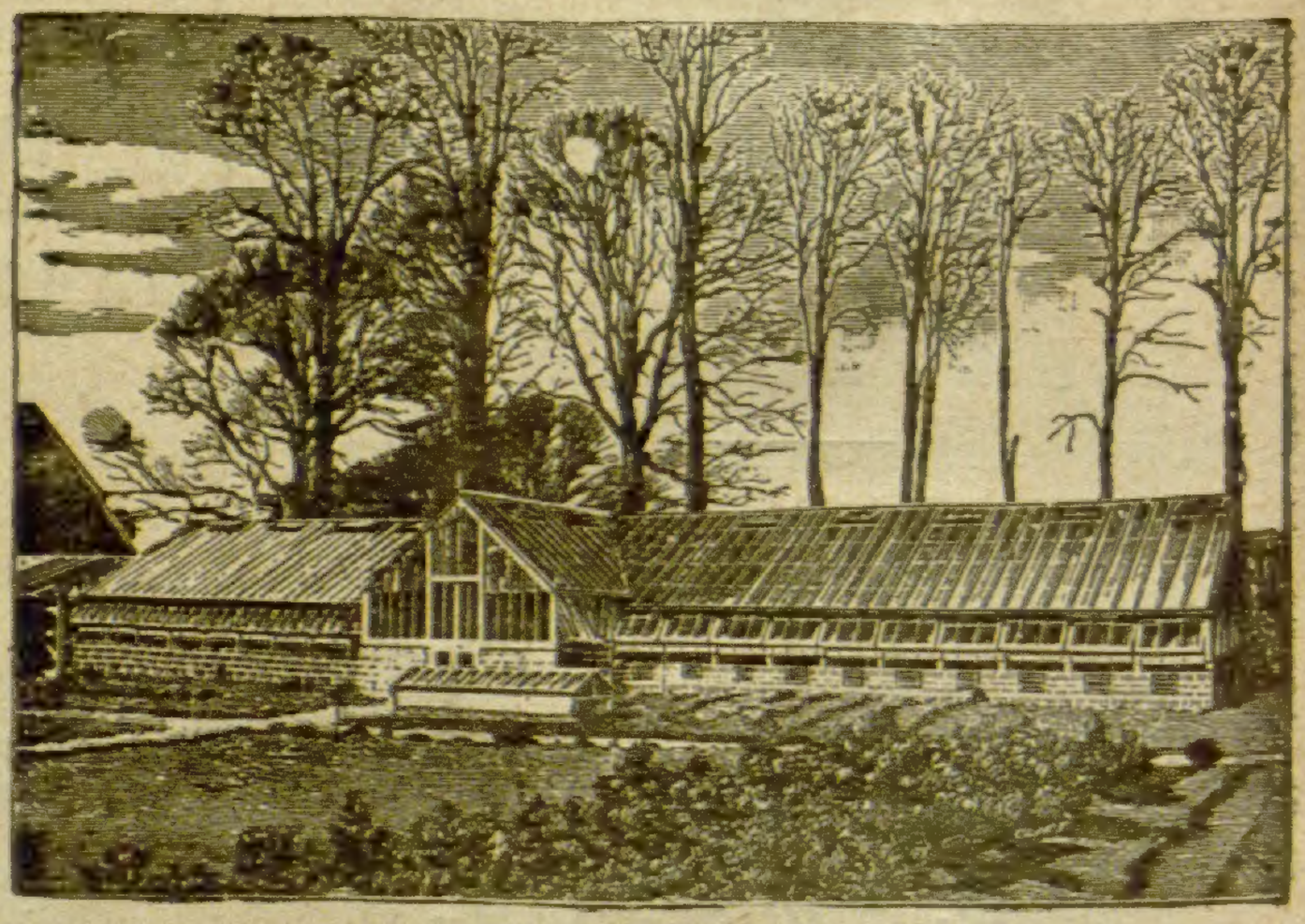

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